

NORTH TEXAS MUNICIPAL WATER DISTRICT

BONHAM REUSE APPLICATION

446-29



Water Availability Division

Lloyd Gosselink Rochelle & Townsend, P.C.

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September 16, 2024

Mr. Bert Galvan Manager Water Rights Permitting and Availability (MC 160) Texas Commission on Environmental Quality P.O. Box 13087 Austin, Texas 78711-3087 VIA HAND DELIVERY AND ELECTRONIC TRANSMISSION WRPT@tceq.texas.gov

Re: North Texas Municipal Water District Application for a Water Use Permit

Dear Mr. Galvan:

Please find enclosed one hard copy of an application for a water use permit filed on behalf of North Texas Municipal Water District (the "Applicant"). This application has also been submitted electronically. As provided herein, the enclosed application requests authorizations for the Applicant to divert and use up to 2,800 acre-feet per year of return flows from the Bonham Wastewater Treatment Plant for municipal purposes. This application is consistent with the discussions during the July 2, 2024, pre-application meeting with Texas Commission on Environmental Quality ("TCEQ") staff.

Enclosed herein is a check in the amount of \$3,075, which is submitted as partial payment for the application fees. The Applicant will remit payment for any additional fees for mailing of notice upon notification from TCEQ of such fees.

We look forward to working with you and your staff in processing this application. Should you have any questions, please do not he sitate to contact me at (512) 322-5876 or Lauren Thomson at (512) 322-5858;

Sincerely,

Sara R. Thornton

SRT/las ENCLOSURES

cc: (via electronic mail only)

Dr. Kathy Alexander, Texas Commission on Environmental Quality

Ms. Brooke McGregor, Texas Commission on Environmental Quality

Mr. Chris Kozlowski, Texas Commission on Environmental Quality

Mr. Billy George, North Texas Municipal Water District

Mr. RJ Muraski, North Texas Municipal Water District

Ms. Lauren Thomson, Lloyd Gosselink Rochelle & Townsend, P.C.

Texas Commission on Environmental Quality Application for a Water Use Permit North Texas Municipal Water District



September 2024

Texas Commission on Environmental Quality

Application for a Water Use Permit

North Texas Municipal Water District

Submitted to:

Texas Commission on Environmental Quality Water Supply Division, Water Rights Permitting (MC-160) 12100 Park 35 Circle Austin, Texas 78753

Prepared for:

North Texas Municipal Water District 501 East Brown Street PO Box 2408 Wylie, Texas 75098

Prepared by:

Lloyd Gosselink Rochelle & Townsend, P.C. 816 Congress Ave., Suite 1900 Austin, Texas 78701

North Texas Municipal Water District Application for a Water Use Permit

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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

TCEQ WATER RIGHTS PERMITTING APPLICATION

ADMINISTRATIVE INFORMATION CHECKLIST

Complete and submit this checklist for each application. See Instructions Page 5.

APPLICANT(S): North Texas Municipal Water District

Indicate whether the following items are included in your application by writing either Y (for yes) or N (for no) next to each item (all items are <u>not</u> required for every application).

Y/N		Y/N	
<u>Y</u>	_Administrative Information Report	Y	_Worksheet 3.0
N	_Additional Co-Applicant Information	N	_Additional W.S. 3.0 for each Point
N	Additional Co-Applicant Signature Pages	N	Recorded Deeds for Diversion Points
Y	Written Evidence of Signature Authority	N	Consent for Diversion Access
Y	_Technical Information Report	Y	_Worksheet 4.0
Y	_USGS Map (or equivalent)	Y	TPDES Permit(s)
Y	_Map Showing Project Details	Y	WWTP Discharge Data
Y	_Original Photographs	N	Groundwater Well Permit
N	Water Availability Analysis	Y	_Signed Water Supply Contract
Y	Worksheet 1.0	Y	_Worksheet 4.1
N	Recorded Deeds for Irrigated Land	Y	_Worksheet 5.0
N	Consent for Irrigated Land	Y	Addendum to Worksheet 5.0
N	Worksheet 1.1	Y	_Worksheet 6.0
N	_Addendum to Worksheet 1.1	Y	Water Conservation Plan(s)
N	Worksheet 1.2	Y	Drought Contingency Plan(s)
Y	Worksheet 2.0	Y	Documentation of Adoption
N	Additional W.S. 2.0 for Each Reservoir	Y	_Worksheet 7.0
N	Dam Safety Documents	Y	_Accounting Plan
N	Notice(s) to Governing Bodies	Y	Worksheet 8.0
N	Recorded Deeds for Inundated Land	Y	Fees
N	 _Consent for Inundated Land	Y	Public Involvement Plan

ADMINISTRATIVE INFORMATION REPORT

The following information is required for all new applications and amendments.

***Applicants are REQUIRED to schedule a pre-application meeting with TCEQ Staff to discuss Applicant's needs prior to submitting an application. Call the Water Rights Permitting Team to schedule a meeting at (512) 239-4600.

1. TYPE OF APPLICATION (Instructions, Page. 6)	
Indicate, by marking X, next to the following authorizations you are seeking.	
XNew Appropriation of State Water	
Amendment to a Water Right *	
XBed and Banks	
*If you are seeking an amendment to an existing water rights authorization, you must be the owner of record of the authorization. If the name of the Applicant in Section 2 does not match the name of the current owner(s) of record for the permit or certificate or if any of the co-owners is not included as an applicant in this amendment request, your application could be returned. If you or a co-applicant are a new owner, but ownership is not reflected in the records of the TCEQ, submit a change of ownership request (Form TCEQ-10204) prior to submitting the application for an amendment. See Instructions page. 6. Please note that an amendment application may be returned, and the Applicant may resubmit once the change ownership is complete.	he d
Please summarize the authorizations or amendments you are seeking in the space below or attach a narrative description entitled "Summary of Request." See Addendum Summary of Request, Tab 4.	7
See Addendum Summary of Request, 1 ab 4.	
N N	

2. APPLICANT INFORMATION (Instructions, Page. 6)

Applicant
Indicate the number of Applicants/Co-Applicants $\frac{1}{1}$ (Include a copy of this section for each Co-Applicant, if any)
What is the Full Legal Name of the individual or entity (applicant) applying for this permit?
North Texas Municipal Water District
(If the Applicant is an entity, the legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal documents forming the entity.)
If the applicant is currently a customer with the TCEQ, what is the Customer Number (CN) You may search for your CN on the TCEQ website at http://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch
CN: 601365448 (leave blank if you do not yet have a CN).
What is the name and title of the person or persons signing the application? Unless an application is signed by an individual applicant, the person or persons must submit writte evidence that they meet the signatory requirements in 30 TAC § 295.14.
First/Last Name: Jennafer P. Covington
Title: Executive Director
Have you provided written evidence meeting the signatory requirements in 30 TAC § 295.3 as an attachment to this application? Y/N See Tab 12.
What is the applicant's mailing address as recognized by the US Postal Service (USPS)? You
may verify the address on the USPS website at
https://tools.usps.com/go/ZipLookupAction!input.action.
Name: North Texas Municipal Water District
Mailing Address: P.O. Box 2408
City: Wylie State: TX ZIP Code: 75098
Indicate an X next to the type of Applicant:
IndividualSole Proprietorship-D.B.A.
PartnershipCorporation
TrustEstate
Federal GovernmentState Government
County GovernmentCity Government
X Other Government Other
For Corporations or Limited Partnerships, provide: State Franchise Tax ID Number: N/A SOS Charter (filing) Number: N/A

3. APPLICATION CONTACT INFORMATION (Instructions, Page. 9)

If the TCEQ needs additional information during the review of the application, who should be contacted? Applicant may submit their own contact information if Applicant wishes to be the point of contact.

First and Last Name: Sara Thornton		
Title: Attorney		
Organization Name: Lloyd Gosselink Ro		
Mailing Address: 816 Congress Ave., Su	ite 1900	
City: Austin		ZIP Code: 78701
Phone Number:(512) 332-5876		
Fax Number: (512) 472-0532		
E-mail Address:		

4. WATER RIGHT CONSOLIDATED CONTACT INFORMATION (Instructions, Page. 9)



This section applies only if there are multiple Owners of the same authorization. Unless otherwise requested, Co-Owners will each receive future correspondence from the Commission regarding this water right (after a permit has been issued), such as notices and water use reports. Multiple copies will be sent to the same address if Co-Owners share the same address. Complete this section if there will be multiple owners and all owners agree to let one owner receive correspondence from the Commission. Leave this section blank if you would like all future notices to be sent to the address of each of the applicants listed in section 2 above.

I/We authorize all future notices be re	eceived on my/our behalf a	at the following:	
First and Last Name:			
Title:			
Organization Name:			
Mailing Address:			
City:	State:	ZIP Code:	
Phone Number:			
Fax Number:			
E-mail Address:			

5. MISCELLANEOUS INFORMATION (Instructions, Page. 9)

a.	The application will not be processed unless all delinquent fees and/or penalties owed to the
	TCEQ or the Office of the Attorney General on behalf of the TCEQ are paid in accordance with
	the Delinquent Fee and Penalty Protocol by all applicants/co-applicants. If you need
	assistance determining whether you owe delinquent penalties or fees, please call the Water
	Rights Permitting Team at (512) 239-4600, prior to submitting your application.
	Rights Permitting Team at (512) 239-4600, prior to submitting your application.

1.	Does Applicant or Co-Applicant owe any fees to the	e TCEQ? Yes / No No
	If yes , provide the following information:	
	Account number: N/A	Amount past due: N/A
2.	Does Applicant or Co-Applicant owe any penalties	to the TCEQ? Yes / No No
	If yes , please provide the following information:	
	Enforcement order number: N/A	Amount past due: N/A

b. If the Applicant is a taxable entity (corporation or limited partnership), the Applicant must be in good standing with the Comptroller or the right of the entity to transact business in the State may be forfeited. See Texas Tax Code, Subchapter F. Applicant's may check their status with the Comptroller at https://mycpa.cpa.state.tx.us/coa/

Is the Applicant or Co-Applicant in good standing with the Comptroller? Yes / No $\frac{N/A}{A}$

c. The commission will not grant an application for a water right unless the applicant has submitted all Texas Water Development Board (TWDB) surveys of groundwater and surface water use – if required. See TWC §16.012(m) and 30 TAC § 297.41(a)(5). Applicants should check survey status on the TWDB website prior to filing: https://www3.twdb.texas.gov/apps/reports/WU/SurveyStatus_PriorThreeYears

Applicant has submitted all required TWDB surveys of groundwater and surface water? Yes / No Yes___

6. SIGNATURE PAGE (Instructions, Page. 11)

	Applicant:	
	I, <u>Jennafer P. Covington, Executive Director</u> (Typed or printed name)	
	(Typed or printed name)	(Title)
	certify under penalty of law that this document an direction or supervision in accordance with a syste properly gather and evaluate the information subm persons who manage the system, or those persons information, the information submitted is, to the baccurate, and complete. I am aware there are signifinformation, including the possibility of fine and in	m designed to assure that qualified personnel nitted. Based on my inquiry of the person or directly responsible for gathering the lest of my knowledge and belief, true, ficant penalties for submitting false
	I further certify that I am authorized under Title 30 and submit this document and I have submitted w	ritten evidence of my signature authority.
	Signature: Jung Couring (Use blue ink)	Date: <u>8/26/2024</u>
C	Subscribed and Sworn to before me by the said Jon this	enviter Covinstor gust , 2024. May , 2028.
l	Ream Peur Notary Public	[SEAL]
	Notary Public Collin County County, Texas	LEANN BUMPUS My Notary ID # 10188600 Expires May 18, 2028

If the Application includes Co-Applicants, each Applicant and Co-Applicant must submit an original, separate signature page



TECHNICAL INFORMATION REPORT WATER RIGHTS PERMITTING

This Report is required for applications for new or amended water rights. Based on the Applicant's responses below, Applicants are directed to submit additional Worksheets (provided herein). A completed Administrative Information Report is also required for each application.

Applicants are REQUIRED to schedule a pre-application meeting with TCEQ Permitting Staff to discuss Applicant's needs and to confirm information necessary for an application prior to submitting such application. Please contact the Water Availability Division at (512) 239-4600 or WRPT@tceq.texas.gov to schedule a meeting.

Date of pre-application meeting: TBD

1. New or Additional Appropriations of State Water. Texas Water Code (TWC) § 11.121 (Instructions, Page. 12)

State Water is: The water of the ordinary flow, underflow, and tides of every flowing river, natural stream, and lake, and of every bay or arm of the Gulf of Mexico, and the storm water, floodwater, and rainwater of every river, natural stream, canyon, ravine, depression, and watershed in the state. TWC § 11.021.

- a. Applicant requests a new appropriation (diversion or impoundment) of State Water? Y / $N_{\underline{Y}}$
- b. Applicant requests an amendment to an existing water right requesting an increase in the appropriation of State Water or an increase of the overall or maximum combined diversion rate? Y / N_{N} (If yes, indicate the Certificate or Permit number: N/A)

If Applicant answered yes to (a) or (b) above, does Applicant also wish to be considered for a term permit pursuant to TWC § 11.1381? Y / N_{-}

c. Applicant requests to extend an existing Term authorization or to make the right permanent? Y / N^{N} (If yes, indicate the Term Certificate or Permit number: N/A)

If Applicant answered yes to (a), (b) or (c), the following worksheets and documents are required:

- Worksheet 1.0 Quantity, Purpose, and Place of Use Information Worksheet
- Worksheet 2.0 Impoundment/Dam Information Worksheet (submit one worksheet for each impoundment or reservoir requested in the application)
- **Worksheet 3.0 Diversion Point Information Worksheet** (submit one worksheet for each diversion point and/or one worksheet for the upstream limit and one worksheet for the downstream limit of each diversion reach requested in the application)
- Worksheet 5.0 Environmental Information Worksheet
- Worksheet 6.0 Water Conservation Information Worksheet
- Worksheet 7.0 Accounting Plan Information Worksheet
- Worksheet 8.0 Calculation of Fees
- Fees calculated on Worksheet 8.0 see instructions Page. 34.
- Maps See instructions Page. 15.
- Photographs See instructions Page. 30.

Additionally, if Applicant wishes to submit an alternate source of water for the project/authorization, see Section 3, Page 3 for Bed and Banks Authorizations (Alternate sources may include groundwater, imported water, contract water or other sources).

Additional Documents and Worksheets may be required (see within).

2. Amendments to Water Rights. TWC § 11.122 (Instructions, Page. 12) This section should be completed if Applicant owns an existing water right and Applicant requests to amend the water right. If Applicant is not currently the Owner of Record in the TCEQ Records, Applicant must submit a Change of Ownership Application (TCEQ-10204) prior to submitting the amendment Application or provide consent from the current owner to make the requested amendment. If the application does not contain consent from the current

prior to submitting the amendment Application or provide consent from the current owner to make the requested amendment. If the application does not contain consent from the current owner to make the requested amendment, TCEQ will not begin processing the amendment application until the Change of Ownership has been completed and will consider the Received Date for the application to be the date the Change of Ownership is completed. See instructions page. 6.

ins	structions page. 6.				
Wa	ater Right (Certificate or Permit) number you a	re requesting to amend:			
Ap Ce	oplicant requests to sever and combine existing ertificates into another Permit or Certificate? Y	g water rights from one or more Permits or / N(if yes, complete chart below):			
	List of water rights to sever Combine into this ONE water right				
a.	Applicant requests an amendment to an exist appropriation of State Water (diversion and/c				
	If yes, application is a new appropriation for t Report (PAGE. 1) regarding New or Addition	he increased amount, complete Section 1 of this all Appropriations of State Water .			
b.	Applicant requests to amend existing Term at water right permanent (remove conditions res Y / N	uthorization to extend the term or make the stricting water right to a term of years)?			
	If yes, application is a new appropriation for t Report (PAGE. 1) regarding New or Addition	he entire amount, complete Section 1 of this al Appropriations of State Water.			
c.	Applicant requests an amendment to change additional purpose or place of use to an exist <i>If yes, submit:</i>				
	 Worksheet 1.0 - Quantity, Purpose, and I Worksheet 1.2 - Notice: "Marshall Criteria 				
d.	Applicant requests to change: diversion point <i>If yes, submit:</i>	(s); or reach(es); or diversion rate? Y / N			
	 Worksheet 3.0 - Diversion Point Information for each diversion point or one works worksheet for the downstream limit of each worksheet 5.0 - Environmental Information points that are not already authorized in a second control of the second control of	heet for the upstream limit and one ch diversion reach) ation (Required for <u>any</u> new diversion			
ρ	Applicant requests amendment to add or more	dify an impoundment reservoir, or dam? Y / N			

If yes, submit: Worksheet 2.0 - Impoundment/Dam Information Worksheet (submit one

worksheet for each impoundment or reservoir)

f.	f. Other - Applicant requests to change any provision of an authorization not mentioned above? Y / NIf yes, call the Water Availability Division at (512) 239-4600 to discuss.			
Ac	 *dditionally, all amendments require: *Worksheet 8.0 - Calculation of Fees; and Fees calculated - see instructions Page. 34 *Maps - See instructions Page. 15. *Additional Documents and Worksheets may be required (see within). 			
3.	Bed and Banks. TWC § 11.042 (Instructions, Page 13)			
a.	Pursuant to contract, Applicant requests authorization to convey, stored or conserved water to the place of use or diversion point of purchaser(s) using the bed and banks of a watercourse? TWC § $11.042(a)$. Y/NNN			
	If yes, submit a signed copy of the Water Supply Contract pursuant to 30 TAC §§ 295.101 and 297.101. Further, if the underlying Permit or Authorization upon which the Contract is based does not authorize Purchaser's requested Quantity, Purpose or Place of Use, or Purchaser's diversion point(s), then either:			
	 Purchaser must submit the worksheets required under Section 1 above with the Contract Water identified as an alternate source; or Seller must amend its underlying water right under Section 2. 			
b.	Applicant requests to convey water imported into the state from a source located wholly outside the state using the bed and banks of a watercourse? TWC § 11.042(a-1). Y / N $\stackrel{\text{N}}{}$			
	If yes, submit worksheets 1.0, 2.0, 3.0, 4.0, 5.0, 7.0, 8.0, Maps and fees from the list below.			
c.	Applicant requests to convey Applicant's own return flows derived from privately owned groundwater using the bed and banks of a watercourse? TWC § 11.042(b). Y / N $_{_}$			
	If yes, submit worksheets 1.0, 2.0, 3.0, 4.0, 5.0, 7.0, 8.0, Maps, and fees from the list below.			
d.	Applicant requests to convey Applicant's own return flows derived from surface water using the bed and banks of a watercourse? TWC § 11.042(c). Y / N \underline{Y}			
	If yes, submit worksheets 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, Maps, and fees from the list below.			
	*Please note, if Applicant requests the reuse of return flows belonging to others, the Applicant will need to submit the worksheets and documents under Section 1 above, as the			

he application will be treated as a new appropriation subject to termination upon direct or indirect reuse by the return flow discharger/owner. See Tab 10.

e. Applicant requests to convey water from any other source, other than (a)-(d) above, using the bed and banks of a watercourse? TWC § 11.042(c). Y/NN

If yes, submit worksheets 1.0, 2.0, 3.0, 4.0, 5.0, 7.0, 8.0, Maps, and fees from the list below. Worksheets and information:

- Worksheet 1.0 Quantity, Purpose, and Place of Use Information Worksheet
- Worksheet 2.0 Impoundment/Dam Information Worksheet (submit one worksheet for each impoundment or reservoir owned by the applicant through which water will be conveyed or diverted)
- Worksheet 3.0 Diversion Point Information Worksheet (submit one worksheet for the downstream limit of each diversion reach for the proposed conveyances)

- Worksheet 4.0 Discharge Information Worksheet (for each discharge point)
- Worksheet 5.0 Environmental Information Worksheet
- Worksheet 6.0 Water Conservation Information Worksheet
- Worksheet 7.0 Accounting Plan Information Worksheet
- Worksheet 8.0 Calculation of Fees; and Fees calculated see instructions Page. 34
- Maps See instructions Page. 15.
- Additional Documents and Worksheets may be required (see within).

4. General Information, Response Required for all Water Right Applications (Instructions, Page 15)

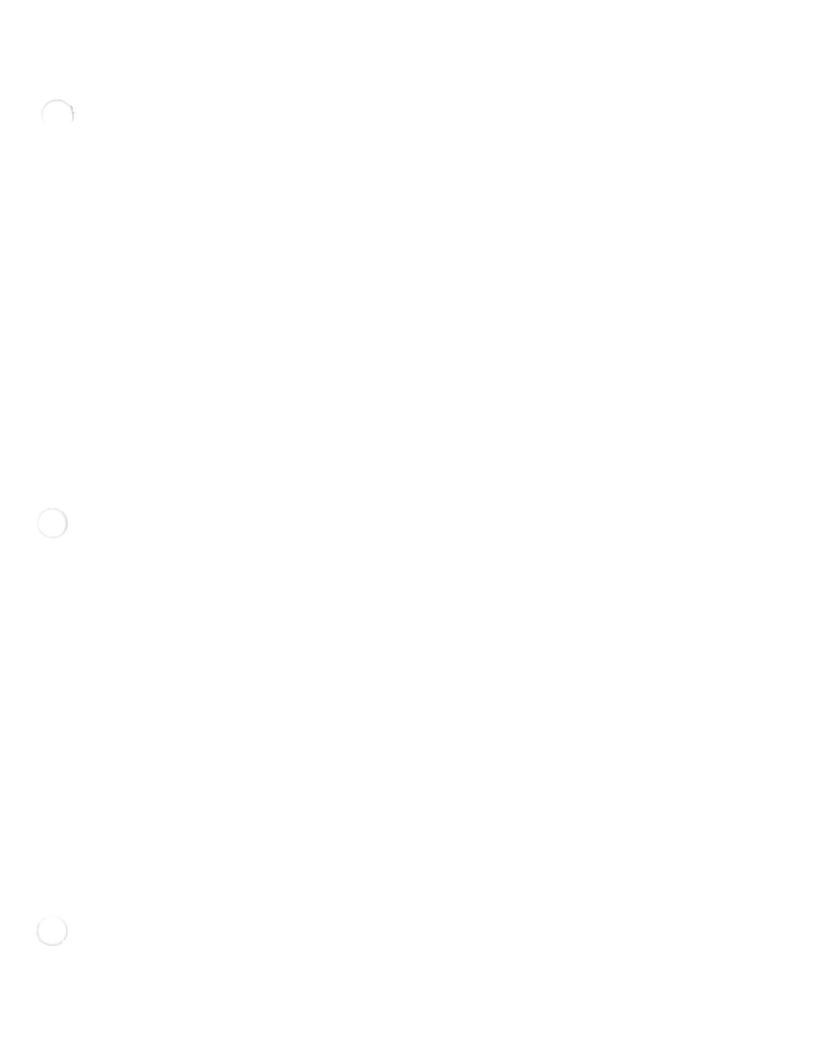
a. Provide information describing how this application addresses a water supply need in a manner that is consistent with the state water plan or the applicable approved regional water plan for any area in which the proposed appropriation is located or, in the alternative, describe conditions that warrant a waiver of this requirement (not required for applications to use groundwater-based return flows). Include citations or page numbers for the State and Regional Water Plans, if applicable. Provide the information in the space below or submit a supplemental sheet entitled "Addendum Regarding the State and Regional Water Plans":

See A	See Addendum Regarding the State and Regional Water Plans, Tab 5.		
		4	
	*		

b. Did the Applicant perform its own Water Availability Analysis? Y / N N

If the Applicant performed its own Water Availability Analysis, provide electronic copies of any modeling files and reports.

c. Does the application include required Maps? (Instructions Page. 15) Y / N



WORKSHEET 1.0 Quantity, Purpose and Place of Use

1. New Authorizations (Instructions, Page. 16)

Submit the following information regarding quantity, purpose and place of use for requests for new or additional appropriations of State Water or Bed and Banks authorizations:

Quantity (acrefeet) (Include losses for Bed and Banks)	State Water Source (River Basin) or Alternate Source *each alternate source (and new appropriation based on return flows of others) also requires completion of Worksheet 4.0	Purpose(s) of Use	Place(s) of Use *requests to move state water out of basin also require completion of Worksheet 1.1 Interbasin Transfer
2,800	Alternate Source (return flows from TPDES Permit No. WQ001007001)	Municipal	Bois d'Arc Creek and Fannin County
2,800 Total amount of water (in acre-feet) to be used annually (<i>include losses for Bed and Banks applications</i>)			

If the Purpose of Use is Agricultural/Irrigation for any amount of water, provide:

- a. Location Information Regarding the Lands to be Irrigated
 - i) Applicant proposes to irrigate a total of N/A acres in any one year. This acreage is all of or part of a larger tract(s) which is described in a supplement attached to this application and contains a total of N/A acres in N/A County, TX.
 - ii) Location of land to be irrigated: In the N/A Original Survey No. N/A . Abstract No. N/A .

A copy of the deed(s) or other acceptable instrument describing the overall tract(s) with the recording information from the county records must be submitted. Applicant's name must match deeds.

If the Applicant is not currently the sole owner of the lands to be irrigated, Applicant must submit documentation evidencing consent or other documentation supporting Applicant's right to use the land described.

Water Rights for Irrigation may be appurtenant to the land irrigated and convey with the land unless reserved in the conveyance. 30 TAC § 297.81.

2. Amendments - Purpose or Place of Use (Instructions, Page. 12)



a. Complete this section for each requested amendment changing, adding, or removing Purpose(s) or Place(s) of Use, complete the following:

Quantity (acre- feet)	Existing Purpose(s) of Use	Proposed Purpose(s) of Use*	Existing Place(s) of Use	Proposed Place(s) of Use**

^{*}If the request is to add additional purpose(s) of use, include the existing and new purposes of use under "Proposed Purpose(s) of Use."

Changes to the purpose of use in the Rio Grande Basin may require conversion. 30 TAC § 303.43.

	For any request which adds Agricultural purpose Agricultural rights, provide the following location irrigated:	
i.	Applicant proposes to irrigate a total of	acres in any one year. This acrea

i.	Applicant proposes to irrigate a total of all of or part of a larger tract(s) which	acres in any one year. This acreage is is described in a supplement attached to this
	application and contains a total of County, TX.	
ii.	Location of land to be irrigated: In th	eOriginal Survey No.

A copy of the deed(s) describing the overall tract(s) with the recording information from the county records must be submitted. Applicant's name must match deeds. If the Applicant is not currently the sole owner of the lands to be irrigated, Applicant must submit documentation evidencing consent or other legal right for Applicant to use the land described.

Water Rights for Irrigation may be appurtenant to the land irrigated and convey with the land unless reserved in the conveyance. 30 TAC § 297.81.

- c. Submit Worksheet 1.1, Interbasin Transfers, for any request to change the place of use which moves State Water to another river basin.
- d. See Worksheet 1.2, Marshall Criteria, and submit if required.
- e. See Worksheet 6.0, Water Conservation/Drought Contingency, and submit if required.

^{**}If the request is to add additional place(s) of use, include the existing and new places of use under "Proposed Place(s) of Use."



WORKSHEET 1.1 INTERBASIN TRANSFERS, TWC § 11.085

Submit this worksheet for an application for a new or amended water right which requests to transfer State Water from its river basin of origin to use in a different river basin. A river basin is defined and designated by the Texas Water Development Board by rule pursuant to TWC § 16.051.

Applicant requests to transfer State Water to another river basin within the State? Y / N_____

-	•
1.	Interbasin Transfer Request (Instructions, Page. 20)
a. l	Provide the Basin of Origin
b. I	Provide the quantity of water to be transferred (acre-feet)
c. I	Provide the Basin(s) and count(y/ies) where use will occur in the space below:
2.	Exemptions (Instructions, Page. 20), TWC § 11.085(v)
Ce	ertain interbasin transfers are exempt from further requirements. Answer the following:
a.	The proposed transfer, which in combination with any existing transfers, totals less than 3,000 acre-feet of water per annum from the same water right. Y/N

- b. The proposed transfer is from a basin to an adjoining coastal basin? Y/N____
- c. The proposed transfer from the part of the geographic area of a county or municipality, or the part of the retail service area of a retail public utility as defined by Section 13.002, that is within the basin of origin for use in that part of the geographic area of the county or municipality, or that contiguous part of the retail service area of the utility, not within the basin of origin? Y/N__
- d. The proposed transfer is for water that is imported from a source located wholly outside the boundaries of Texas, except water that is imported from a source located in the United Mexican States? Y/N_

3. Interbasin Transfer Requirements (Instructions, Page. 20)

For each Interbasin Transfer request that is not exempt under any of the exemptions listed above Section 2, provide the following information in a supplemental attachment titled "Addendum to Worksheet 1.1, Interbasin Transfer":

- a. the contract price of the water to be transferred (if applicable) (also include a copy of the contract or adopted rate for contract water);
- b. a statement of each general category of proposed use of the water to be transferred and a detailed description of the proposed uses and users under each category;
- c. the cost of diverting, conveying, distributing, and supplying the water to, and treating the water for, the proposed users (example expert plans and/or reports documents may be provided to show the cost);

- d. describe the need for the water in the basin of origin and in the proposed receiving basin based on the period for which the water supply is requested, but not to exceed 50 years (the need can be identified in the most recently approved regional water plans. The state and regional water plans are available for download at this website:

 (http://www.twdb.texas.gov/waterplanning/swp/index.asp);
- e. address the factors identified in the applicable most recently approved regional water plans which address the following:
 - (i) the availability of feasible and practicable alternative supplies in the receiving basin to the water proposed for transfer;
 - (ii) the amount and purposes of use in the receiving basin for which water is needed;
 - (iii) proposed methods and efforts by the receiving basin to avoid waste and implement water conservation and drought contingency measures;
 - (iv) proposed methods and efforts by the receiving basin to put the water proposed for transfer to beneficial use;
 - (v) the projected economic impact that is reasonably expected to occur in each basin as a result of the transfer; and
 - (vi) the projected impacts of the proposed transfer that are reasonably expected to occur on existing water rights, instream uses, water quality, aquatic and riparian habitat, and bays and estuaries that must be assessed under Sections 11.147, 11.150, and 11.152 in each basin (*if applicable*). If the water sought to be transferred is currently authorized to be used under an existing permit, certified filing, or certificate of adjudication, such impacts shall only be considered in relation to that portion of the permit, certified filing, or certificate of adjudication proposed for transfer and shall be based on historical uses of the permit, certified filing, or certificate of adjudication for which amendment is sought;
- f. proposed mitigation or compensation, if any, to the basin of origin by the applicant; and
- g. the continued need to use the water for the purposes authorized under the existing Permit, Certified Filing, or Certificate of Adjudication, if an amendment to an existing water right is sought.



WORKSHEET 1.2 NOTICE. "THE MARSHALL CRITERIA"

This worksheet assists the Commission in determining notice required for certain amendments that do not already have a specific notice requirement in a rule for that type of amendment, and that do not change the amount of water to be taken or the diversion rate. The worksheet provides information that Applicant is required to submit for amendments such as certain amendments to special conditions or changes to off-channel storage. These criteria address whether the proposed amendment will impact other water right holders or the on-stream environment beyond and irrespective of the fact that the water right can be used to its full authorized amount.

This worksheet is **not required for Applications in the Rio Grande Basin** requesting changes in the purpose of use, rate of diversion, point of diversion, and place of use for water rights held in and transferred within and between the mainstems of the Lower Rio Grande, Middle Rio Grande, and Amistad Reservoir. See 30 TAC § 303.42.

This worksheet is **not required for amendments which are only changing or adding diversion points, or request only a bed and banks authorization or an IBT authorization**. However, Applicants may wish to submit the Marshall Criteria to ensure that the administrative record includes information supporting each of these criteria

1. The "Marshall Criteria" (Instructions, Page. 21)

Submit responses on a supplemental attachment titled "Marshall Criteria" in a manner that conforms to the paragraphs (a) – (g) below:

- a. <u>Administrative Requirements and Fees.</u> Confirm whether application meets the administrative requirements for an amendment to a water use permit pursuant to TWC Chapter 11 and Title 30 Texas Administrative Code (TAC) Chapters 281, 295, and 297. An amendment application should include, but is not limited to, a sworn application, maps, completed conservation plan, fees, etc.
- b. <u>Beneficial Use.</u> Discuss how proposed amendment is a beneficial use of the water as defined in TWC § 11.002 and listed in TWC § 11.023. Identify the specific proposed use of the water (e.g., road construction, hydrostatic testing, etc.) for which the amendment is requested.
- c. <u>Public Welfare</u>. Explain how proposed amendment is not detrimental to the public welfare. Consider any public welfare matters that might be relevant to a decision on the application. Examples could include concerns related to the well-being of humans and the environment.
- d. <u>Groundwater Effects.</u> Discuss effects of proposed amendment on groundwater or groundwater recharge.

- e. <u>State Water Plan.</u> Describe how proposed amendment addresses a water supply need in a manner that is consistent with the state water plan or the applicable approved regional water plan for any area in which the proposed appropriation is located or, in the alternative, describe conditions that warrant a waiver of this requirement. The state and regional water plans are available for download at:

 http://www.twdb.texas.gov/waterplanning/swp/index.asp.
- f. <u>Waste Avoidance</u>. Provide evidence that reasonable diligence will be used to avoid waste and achieve water conservation as defined in TWC § 11.002. Examples of evidence could include, but are not limited to, a water conservation plan or, if required, a drought contingency plan, meeting the requirements of 30 TAC Chapter 288.
- g. <u>Impacts on Water Rights or On-stream Environment.</u> Explain how the proposed amendment will not impact other water right holders or the on-stream environment beyond and irrespective of the fact that the water right can be used to its full authorized amount.



WORKSHEET 2.0 Impoundment/Dam Information

This worksheet **is required** for any impoundment, reservoir and/or dam. Submit an additional Worksheet 2.0 for each impoundment or reservoir requested in this application.

If there is more than one structure, the numbering/naming of structures should be consistent throughout the application and on any supplemental documents (e.g., maps).

1	. Storage Information (Instructions, Page. 21)
a.	Official USGS name of reservoir, if applicable:
b.	Provide amount of water (in acre-feet) impounded by structure at normal maximum operating level:
c.	The impoundment is on-channelor off-channel(mark one)
	 i. Applicant has verified on-channel or off-channel determination by contacting Surface Water Availability Team at (512) 239-4600? Y / N ii. If on-channel, will the structure have the ability to pass all State Water inflows that Applicant does not have authorization to impound? Y / N
d.	Is the impoundment structure already constructed? Y/N
	i. For already constructed on-channel structures:
	1. Date of Construction:
	 2. Was it constructed to be an exempt structure under TWC § 11.142? Y / N a. If Yes, is Applicant requesting to proceed under TWC § 11.143? Y / N b. If No, has the structure been issued a notice of violation by TCEQ? Y / N
	 Is it a U.S. Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service (SCS)) floodwater-retarding structure? Y / N
	ii. For any proposed new structures or modifications to structures:
	 Applicant must contact TCEQ Dam Safety Section at (512) 239-0326, prior to submitting an Application. Applicant has contacted the TCEQ Dam Safety Section regarding the submission requirements of 30 TAC, Ch. 299? Y/NProvide the date and the name of the Staff Person
	 2. As a result of Applicant's consultation with the TCEQ Dam Safety Section, TCEQ has confirmed that: a. No additional dam safety documents required with the Application. Y / N b. Plans (with engineer's seal) for the structure required. Y / N c. Engineer's signed and sealed hazard classification required. Y / N d. Engineer's statement that structure complies with 30 TAC, Ch. 299 Rules required. Y / N

	3. Applicants shall give notice by certified mail to each member of the governing body of each county and municipality in which the reservoir, or any part of the reservoir to be constructed, will be located. (30 TAC § 295.42). Applicant must submit a copy of all the notices and certified mailing cards with this Application. Notices and cards are included? Y / N
iii.	Additional information required for on-channel storage:
	1. Surface area (in acres) of on-channel reservoir at normal maximum operating level:
	 Based on the Application information provided, Staff will calculate the drainage area above the on-channel dam or reservoir. If Applicant wishes to also calculate the drainage area they may do so at their option. Applicant has calculated the drainage area. Y/N If yes, the drainage area is sq. miles. (If assistance is needed, call the Surface Water Availability Team prior to submitting the application, (512) 239-4600).
2. Str	ucture Location (Instructions, Page. 23)
a. On Water	course (if on-channel) (USGS name):
b. Zip Code	
a Tradha	O : 1 1 C No.
c. in the	Original Survey No, Abstract No
c. in the	Original Survey No, Abstract No County, Texas.
* A sub	County, Texas. Copy of the deed(s) with the recording information from the county records must be mitted describing the tract(s) that include the structure and all lands to be indated.
* A sub inu **If or v doc	County, Texas. copy of the deed(s) with the recording information from the county records must be mitted describing the tract(s) that include the structure and all lands to be
* A sub inui **If or v doc righ	County, Texas. copy of the deed(s) with the recording information from the county records must be mitted describing the tract(s) that include the structure and all lands to be adated. the Applicant is not currently the sole owner of the land on which the structure is will be built and sole owner of all lands to be inundated, Applicant must submit umentation evidencing consent or other documentation supporting Applicant's at to use the land described. In the centerline of the dam (on-channel) or anywhere within the impoundment (off-
* A sub inun **If or v doc righ d. A point o channel)	County, Texas. copy of the deed(s) with the recording information from the county records must be mitted describing the tract(s) that include the structure and all lands to be adated. the Applicant is not currently the sole owner of the land on which the structure is will be built and sole owner of all lands to be inundated, Applicant must submit umentation evidencing consent or other documentation supporting Applicant's at to use the land described. In the centerline of the dam (on-channel) or anywhere within the impoundment (off-
* A sub- inu **If or v doc- righ d. A point o channel)	County, Texas. copy of the deed(s) with the recording information from the county records must be mitted describing the tract(s) that include the structure and all lands to be adated. the Applicant is not currently the sole owner of the land on which the structure is will be built and sole owner of all lands to be inundated, Applicant must submit umentation evidencing consent or other documentation supporting Applicant's at to use the land described. In the centerline of the dam (on-channel) or anywhere within the impoundment (officies: The content of the dam (on-channel) or anywhere within the impoundment (officies). The content of the dam (on-channel) or anywhere within the impoundment (officies).
* A subtinum ** If or v doct right d. A point of channel) Lati	County, Texas. copy of the deed(s) with the recording information from the county records must be mitted describing the tract(s) that include the structure and all lands to be indated. the Applicant is not currently the sole owner of the land on which the structure is will be built and sole owner of all lands to be inundated, Applicant must submit the umentation evidencing consent or other documentation supporting Applicant's at to use the land described. In the centerline of the dam (on-channel) or anywhere within the impoundment (officies: The content of the land Longitude in decimal degrees to at least six decimal content of the method used to calculate the location (examples: Handheld GPS Device GIS, Mapping Program): Line of the method used to calculate the location (examples: Handheld GPS Device GIS, Mapping Program): Line of the deed(s) with the recording information from the country records must be added to calculate the location (examples: Handheld GPS Device GIS, Mapping Program): Line of the deed(s) with the recording information from the country records must be added to calculate the location (examples: Handheld GPS Device GIS, Mapping Program):
* A sub- inun **If or v doc- righ d. A point o channel) Lati- *Pro- place	County, Texas. copy of the deed(s) with the recording information from the county records must be mitted describing the tract(s) that include the structure and all lands to be indated. the Applicant is not currently the sole owner of the land on which the structure is will be built and sole owner of all lands to be inundated, Applicant must submit umentation evidencing consent or other documentation supporting Applicant's at to use the land described. In the centerline of the dam (on-channel) or anywhere within the impoundment (office) is: Tude

WORKSHEET 3.0 DIVERSION POINT (OR DIVERSION REACH) INFORMATION

This worksheet **is required** for each diversion point or diversion reach. Submit one Worksheet 3.0 for **each** diversion point and two Worksheets for **each** diversion reach (one for the upstream limit and one for the downstream limit of each diversion reach).

The numbering of any points or reach limits should be consistent throughout the application and on supplemental documents (e.g., maps).

1.	Diversion Information (Instructions, Page	. 24)
a.	This Worksheet is to add new (select 1 of 3 below):	
	 1. Diversion Point No. 2. N/A Upstream Limit of Diversion Reach No. 3. N/A Downstream Limit of Diversion Reach No. 	iversion anywhere along the perimeter of
b.	Maximum Rate of Diversion for this new point N/A or N/A gpm (gallons per minute)	cfs (cubic feet per second)
c.	Does this point share a diversion rate with other points? Yes, submit Maximum Combined Rate of Diversion for points/reaches 365.15 cfs or 163,889 gpm	
d.	For amendments, is Applicant seeking to increase combine	ed diversion rate? Y / N _{N/A}
	** An increase in diversion rate is considered a new appropriation of Section 1, New or Additional Appropriation	
e.	Check ($$) the appropriate box to indicate diversion location diversion location is existing or proposed):	n and indicate whether the
	Check one	Write: Existing or Proposed
	Directly from stream	
	From an on-channel reservoir	Existing
	From a stream to an on-channel reservoir	
	Other method (explain fully, use additional sheets if necessary)	
f.	Based on the Application information provided, Staff will above the diversion point (or reach limit). If Applicant wis drainage area, you may do so at their option.	calculate the drainage area hes to also calculate the
	Applicant has calculated the drainage area. Y / $N_{\underline{N}}$	
	If yes, the drainage area is NA sq. miles. (If assistance is needed, call the Surface Water Availabil submitting application)	ity Team at (512) 239-4600, prior to

2.	
a.	On watercourse (USGS name): Bois d'Arc Lake
b.	Zip Code: <u>75418</u>
c.	Location of point: In theOriginal Survey No, Abstract No, FaninCounty, Texas.
	Water Use Permit No. 12151 authorizes diversion anywhere along the perimeter of Bois d'Arc Lake. See Tab 9.
	A copy of the deed(s) with the recording information from the county records must be submitted describing tract(s) that include the diversion structure. For diversion reaches, the Commission cannot grant an Applicant access to property that the Applicant does not own or have consent or a legal right to access, the Applicant will be required to provide deeds, or consent, or other documents supporting a legal right to use the specific points when specific diversion points within the reach are utilized. Other documents may include, but are not limited to a recorded easement, a land lease, a contract, or a citation to the Applicant's right to exercise eminent domain to acquire access. Point is at: Latitude 33.716492N, Longitude 95.982660N.
	Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal places
	The latitude and longitude is representative of the perimeter of Bois d'Arc Lake.
e.	Indicate the method used to calculate the location (examples: Handheld GPS Device, GIS, Mapping Program): Mapping program; latitude and longitude coordinates are taken from the Bois d'Arc Lake water right.
f.	Map submitted must clearly identify each diversion point and/or reach. See instructions Page. 15. See Tab 11.
g.	If the Plan of Diversion is complicated and not readily discernable from looking at the map, attach additional sheets that fully explain the plan of diversion.

NTMWD requests diversion from any point along the perimeter of Bois d'Arc Lake.

WORKSHEET 4.0 DISCHARGE INFORMATION

This worksheet required for any requested authorization to discharge water into a State Watercourse for conveyance and later withdrawal or in-place use. Worksheet 4.1 is also required for each Discharge point location requested. Instructions Page. 26. Applicant is responsible for obtaining any separate water quality authorizations which may be required and for insuring compliance with TWC, Chapter 26 or any other applicable law.

CO	mp	liance with TWC, Chapter 26 or any other applicable law.
a.	Th	e purpose of use for the water being discharged will be municipal use
b.	or	ovide the amount of water that will be lost to transportation, evaporation, seepage, channel other associated carriage losses o (% or amount) and explain the method of culation: The applicant intends to divert or pass downstream the amount discharged within a matter of days post-discharge. Any water not diverted or passed through downstream will become state water.
c.		the source of the discharged water return flows? Y / $N_{\underline{Y}}$ If yes, provide the lowing information:
	1.	The TPDES Permit Number(s). <u>WQ0010070001</u> (attach a copy of the current TPDES permit(s)) See Tab 6.
	2.	Applicant is the owner/holder of each TPDES permit listed above? Y / $N_{\underline{N}}$
wi wi Ap	iter th th opro e dis	TE NOTE: If Applicant is not the discharger of the return flows, or the Applicant is not the right owner of the underlying surface water right, or the Applicant does not have a contract he discharger, the application should be submitted under Section 1, New or Additional of State Water, as a request for a new appropriation of state water. If Applicant is scharger, the surface water right holder, or the contract holder, then the application should omitted under Section 3, Bed and Banks.
	3.	Monthly WWTP discharge data for the past 5 years in electronic format. (Attach and label as "Supplement to Worksheet 4.0"). See Tab 7.
	4.	The percentage of return flows from groundwater, surface water?
	5.	If any percentage is surface water, provide the base water right number(s) COA 02-4925.
d.		the source of the water being discharged groundwater? Y / N_{N} If yes, provide following information:
	1.	Source aquifer(s) from which water will be pumped: N/A
	2.	If the well has not been constructed, provide production information for wells in the same aquifer in the area of the application. See http://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp . Additionally, provide well numbers or identifiers N/A .
	3.	Indicate how the groundwater will be conveyed to the stream or reservoir.
		N/A
	4.	A copy of the groundwater well permit if it is located in a Groundwater Conservation District (GCD) or evidence that a groundwater well permit is not required.
		ne source of the water being discharged a surface water supply contract? $Y / N_{\underline{Y}}$ es, provide the signed contract(s). See Tab 10.
lii.	Ide	entify any other source of the water N/A

WORKSHEET 4.1 DISCHARGE POINT INFORMATION

This worksheet is required for **each** discharge point. Submit one Worksheet 4.1 for each discharge point. If there is more than one discharge point, the numbering of the points should be consistent throughout the application and on any supplemental documents (e.g., maps). **Instructions, Page 27.**

For water discharged at this location provide:

a.	The amount of water that will be discharged at this point is 2,800 acre-feet per year. The discharged amount should include the amount needed for use and to compensate for any losses.
b. c.	Water will be discharged at this point at a maximum rate of 10.2 cfs or 4,583 gpm. Name of Watercourse as shown on Official USGS maps: unnamed tributary of Pig Branch
d.	Zip Code 75418
e.	Location of point: In theOriginal Survey No. 000136, Abstract No. 51County, Texas.
f.	Point is at: Latitude 33.588916 *N, Longitude 96.156800 *W. *Provide Latitude and Longitude coordinates in decimal degrees to at least six decimal
g.	Places Indicate the method used to calculate the discharge point location (examples: Handheld GPS Device, GIS, Mapping Program): Mapping program.

Map submitted must clearly identify each discharge point. See instructions Page. 15.

WORKSHEET 5.0 ENVIRONMENTAL INFORMATION

1. Impingement and Entrainment

Indica aquat autho	section is required for any new diversion point that is not already authorized. Ite the measures the applicant will take to avoid impingement and entrainment of ic organisms (ex. Screens on any new diversion structure that is not already rized in a water right). Instructions, Page 28. No new diversion point.
2.	New Appropriations of Water (Canadian, Red, Sulphur, and Cypress Creek Basins only) and Changes in Diversion Point(s)
Sulph	section is required for new appropriations of water in the Canadian, Red, ur, and Cypress Creek Basins and in all basins for requests to change a sion point. Instructions, Page 30.
	iption of the Water Body at each Diversion Point or Dam Location. (Provide an onmental Information Sheet for each location),
a. Ide	ntify the appropriate description of the water body.
	□ Stream
	■ Reservoir
	Average depth of the entire water body, in feet: 22.24
	□ Other, specify:
b. Flo	w characteristics
J/A	If a stream, was checked above, provide the following. For new diversion locations, check one of the following that best characterize the area downstream of the diversion (check one).
	☐ Intermittent – dry for at least one week during most years
	☐ Intermittent with Perennial Pools – enduring pools
	□ Perennial – normally flowing
	Check the method used to characterize the area downstream of the new diversion location.
	□ USGS flow records

☐ Historical observation by adjacent landowners

☐ Personal observation
□ Other, specify:
c. Waterbody aesthetics
Check one of the following that best describes the aesthetics of the stream segments affected by the application and the area surrounding those stream segments.
 Wilderness: outstanding natural beauty; usually wooded or unpastured area; water clarity exceptional
■ Natural Area: trees and/or native vegetation common; some development evident (from fields, pastures, dwellings); water clarity discolored
☐ Common Setting: not offensive; developed but uncluttered; water may be colored or turbid
☐ Offensive: stream does not enhance aesthetics; cluttered; highly developed; dumping areas; water discolored
d. Waterbody Recreational Uses
Are there any known recreational uses of the stream segments affected by the application?
■ Primary contact recreation (swimming or direct contact with water)
☐ Secondary contact recreation (fishing, canoeing, or limited contact with water)
□ Non-contact recreation
e. Submit the following information in a Supplemental Attachment, labeled Addendum to Worksheet 5.0: See Tab 8: Addendum to Worksheet 5.0.
1 Photographs of the stream at the diversion point or dam location Photographs should

- 1. Photographs of the stream at the diversion point or dam location. Photographs should be in color and show the proposed point or reservoir and upstream and downstream views of the stream, including riparian vegetation along the banks. Include a description of each photograph and reference the photograph to the mapsubmitted with the application indicating the location of the photograph and the direction of the shot.
- 2. If the application includes a proposed reservoir, also include:



- i. A brief description of the area that will be inundated by the reservoir.
- ii. If a United States Army Corps of Engineers (USACE) 404 permit is required, provide the project number and USACE project manager.
- iii. A description of how any impacts to wetland habitat, if any, will be mitigated if the reservoir is greater than 5,000 acre-feet.

3. Alternate Sources of Water and/or Bed and Banks Applications

This section is required for applications using an alternate source of water and bed and banks applications in any basins. **Instructions, page 31.**

- a. For all bed and banks applications:
 - i. Submit an assessment of the adequacy of the quantity and quality of flows remaining after the proposed diversion to meet instream uses and bay and estuary freshwater inflow requirements. See Tab 8.
- b. For all alternate source applications:
 - i. If the alternate source is treated return flows, provide the TPDES permit number <u>WQ00</u>1007001
 - ii. If groundwater is the alternate source, or groundwater or other surface water will be discharged into a watercourse provide:

Reasonably current water chemistry information including but not limited to the following parameters in the table below. Additional parameters may be requested if there is a specific water quality concern associated with the aquifer from which water is withdrawn. If data for onsite wells are unavailable; historical data collected from similar sized wells drawing water from the same aquifer may be provided. However, onsite data may still be required when it becomes available. Provide the well number or well identifier. Complete the information below for each well and provide the Well Number or identifier.

Parameter	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
Sulfate, mg/L					
Chloride,					
mg/L					
Total					
Dissolved					
Solids, mg/L					
pH, standard					S.
units					
Temperature*,					
degrees					
Celsius					

^{*} Temperature must be measured onsite at the time the groundwater sample is collected.

iii.	If groundwater will be used, provide the depth of the well N/A	and the name
	of the aguifer from which water is withdrawn N/A	

WORKSHEET 6.0 Water Conservation/Drought Contingency Plans

This form is intended to assist applicants in determining whether a Water Conservation Plan and/or Drought Contingency Plans is required and to specify the requirements for plans. **Instructions, Page 31.**

The TCEQ has developed guidance and model plans to help applicants prepare plans. Applicants may use the model plan with pertinent information filled in. For assistance submitting a plan call the Resource Protection Team (Water Conservation staff) at 512-239-4600, or e-mail wras@tceq.texas.gov. The model plans can also be downloaded from the TCEQ webpage. Please use the most up-to-date plan documents available on the webpage.

1. Water Conservation Plans

See Tab 13.

- a. The following applications must include a completed Water Conservation Plan (30 TAC § 295.9) for each use specified in 30 TAC, Chapter 288 (municipal, industrial or mining, agriculture including irrigation, wholesale):
 - 1. Request for a new appropriation or use of State Water.
 - 2. Request to amend water right to increase appropriation of State Water.
 - 3. Request to amend water right to extend a term.
 - 4. Request to amend water right to change a place of use.

 *does not apply to a request to expand irrigation acreage to adjacent tracts.
 - 5. Request to amend water right to change the purpose of use. *applicant need only address new uses.
 - 6. Request for bed and banks under TWC § 11.042(c), when the source water is State Water.

*including return flows, contract water, or other State Water.

b.	. If Applicant is requesting any authorization in section (1)(a) above, indicate each which Applicant is submitting a Water Conservation Plan as an attachment:	use for
	1Municipal Use. See 30 TAC § 288.2. **	
	2Industrial or Mining Use. See 30 TAC § 288.3.	
	3Agricultural Use, including irrigation. See 30 TAC § 288.4.	
	4. X Wholesale Water Suppliers. See 30 TAC § 288.5. **	90

**If Applicant is a water supplier, Applicant must also submit documentation of adoption of the plan. Documentation may include an ordinance, resolution, or tariff, etc. See 30 TAC §§ 288.2(a)(1)(J)(i) and 288.5(1)(H). Applicant has submitted such documentation with each water conservation plan? Y / N_{\perp}

c. Water conservation plans submitted with an application must also include data and information which: supports applicant's proposed use with consideration of the plan's water conservation goals; evaluates conservation as an alternative to the proposed

appropriation; and evaluates any other feasible alternative to new water development. See 30 TAC § 288.7. Applicant has included this information in each applicable plan? Y / N

2. **Drought Contingency Plans**

See Tab 13.

- A drought contingency plan is also required for the following entities if Applicant is requesting any of the authorizations in section (1) (a) above – indicate each that applies: 1. Municipal Uses by public water suppliers. See 30 TAC § 288.20.

 - 2. Irrigation Use/Irrigation water suppliers. See 30 TAC § 288.21.
 - 3. X Wholesale Water Suppliers. See 30 TAC § 288.22.
- b. If Applicant must submit a plan under section 2(a) above, Applicant has also submitted documentation of adoption of drought contingency plan (ordinance, resolution, or tariff, etc. See 30 TAC § 288.30) Y / NY

WORKSHEET 7.0 ACCOUNTING PLAN INFORMATION WORKSHEET

The following information provides guidance on when an Accounting Plan may be required for certain applications and if so, what information should be provided. An accounting plan can either be very simple such as keeping records of gage flows, discharges, and diversions; or, more complex depending on the requests in the application. Contact the Surface Water Availability Team at 512-239-4600 for information about accounting plan requirements, if any, for your application. **Instructions, Page 34.** See Tab 14: Worksheet 7.0 Accounting Plan.

1. Is Accounting Plan Required

Accounting Plans are generally required:

- For applications that request authorization to divert large amounts of water from a single point where multiple diversion rates, priority dates, and water rights can also divert from that point;
- For applications for new major water supply reservoirs;
- For applications that amend a water right where an accounting plan is already required, if the amendment would require changes to the accounting plan;
- For applications with complex environmental flow requirements;
- For applications with an alternate source of water where the water is conveyed and diverted; and
- For reuse applications.

2. Accounting Plan Requirements

- a. A text file that includes:
 - 1. an introduction explaining the water rights and what they authorize;
 - 2. an explanation of the fields in the accounting plan spreadsheet including how they are calculated and the source of the data;
 - 3. for accounting plans that include multiple priority dates and authorizations, a section that discusses how water is accounted for by priority date and which water is subject to a priority call by whom; and
 - 4. Should provide a summary of all sources of water.

b. A **spreadsheet** that includes:

- 1. Basic daily data such as diversions, deliveries, compliance with any instream flow requirements, return flows discharged and diverted and reservoir content;
- 2. Method for accounting for inflows if needed;
- 3. Reporting of all water use from all authorizations, both existing and proposed;
- 4. An accounting for all sources of water;
- 5. An accounting of water by priority date;
- 6. For bed and banks applications, the accounting plan must track the discharged water from the point of delivery to the final point of diversion;
- 7. Accounting for conveyance losses;
- 8. Evaporation losses if the water will be stored in or transported through a reservoir. Include changes in evaporation losses and a method for measuring reservoir content resulting from the discharge of additional water into the reservoir;
- 9. An accounting for spills of other water added to the reservoir; and
- 10. Calculation of the amount of drawdown resulting from diversion by junior rights or diversions of other water discharged into and then stored in the reservoir.

WORKSHEET 8.0 CALCULATION OF FEES

This worksheet is for calculating required application fees. Applications are not Administratively Complete until all required fees are received. **Instructions, Page. 34**

1. NEW APPROPRIATION

	Description	Amount (\$)
	Circle fee correlating to the total amount of water* requested for any new appropriation and/or impoundment. Amount should match total on Worksheet 1, Section 1. Enter corresponding fee under Amount (\$).	\$250.00
	<u>In Acre-Feet</u>	
Filing Fee	a. Less than 100 \$100.00	
	b. 100 - 5,000 \$250.00	
	c. 5,001 - 10,000 \$500.00	
	d. 10,001 - 250,000 \$1,000.00	
	e. More than 250,000 \$2,000.00	
Recording Fee		\$25.00
Agriculture Use Fee	Only for those with an Irrigation Use. Multiply 50¢ xNumber of acres that will be irrigated with State Water. **	N/A
	Required for all Use Types, excluding Irrigation Use.	\$2,800
Use Fee	Multiply \$1.00 $\times 2,800$ Maximum annual diversion of State Water in acrefeet. **	
n 1 C4	Only for those with Recreational Storage.	N/A
Recreational Storage Fee	Multiply \$1.00 xacre-feet of in-place Recreational Use State Water to be stored at normal max operating level.	
	Only for those with Storage, excluding Recreational Storage.	N/A
Storage Fee	Multiply 50¢ xacre-feet of State Water to be stored at normal max operating level.	
Mailed Notice	Cost of mailed notice to all water rights in the basin. Contact Staff to determine the amount (512) 239-4600.	
	TOTAL	\$ 3,075

2. AMENDMENT OR SEVER AND COMBINE

	Description	Amount (\$)
viii r	Amendment: \$100	N/A
Filing Fee	OR Sever and Combine: \$100 xof water rights to combine	
Recording Fee		N/A
Mailed Notice	Additional notice fee to be determined once application is submitted.	N/A
	TOTAL INCLUDED	s N/A

3. BED AND BANKS

	Description	Amount (\$)
Filing Fee		N/A
Recording Fee		N/A
Mailed Notice	Additional notice fee to be determined once application is submitted.	
	TOTAL INCLUDED	\$ N/A

TAB 4

SUMMARY OF REQUEST

On August 28, 2014, the North Texas Municipal Water District ("NTMWD"), the National Wildlife Federation ("NWF"), and the Lone Star Chapter of the Sierra Club ("Sierra Club") entered into a settlement agreement regarding Water Use Permit No. 12151 for Bois d'Arc Lake (the "Agreement"). Pursuant to Section A.3 of this Agreement, NTMWD agreed to dedicate return flows associated with the City of Bonham's Wastewater Treatment Plant, TPDES Permit No. WQ0010070001 ("Bonham WWTP") to the environment for instream flow purposes at certain times. NTMWD, NWF, and Sierra Club recognize that to achieve dedication of such return flows, NTMWD is required to first file an application for municipal purposes of use based on language in Texas Water Code § 11.0237 stating that TCEQ "may not issue a new permit for instream flows dedicated to environmental needs or bay and estuary inflows."

To formalize its right of reuse for municipal purposes, and as an initial step to comply with its obligation in the Agreement, NTMWD submits this application for a new appropriation of state water (the "Application") to authorize the diversion and use of up to 2,800 acre-feet per year of return flows from the Bonham WWTP. NTMWD seeks to divert and use these return flows for municipal purposes of use to meet the growing demands within NTMWD's service area.

As a part of this Application to divert and use Bonham WWTP return flows, NTMWD is also seeking an authorization to use the bed and banks of Pig Branch, Bois d'Arc Creek and Bois d'Arc Lake in the Red River Basin to transport Bonham WWTP return flows for diversion and use from anywhere along the perimeter of Bois d'Arc Lake. See <u>Tab 6</u> for a copy of TPDES Permit No. WQ0010070001. There are no channel losses associated with this requested bed and banks authorization.

In accordance with the Agreement, upon issuance of a final permit for the Application, NTMWD will seek to amend the water use permit to add instream flow purposes for dedication to environmental needs.

TAB 5

ADDENDUM REGARDING THE STATE AND REGIONAL WATER PLANS

North Texas Municipal Water District ("NTMWD") submits this application to authorize the diversion and use of return flows from the City of Bonham Wastewater Treatment Plant ("Bonham WWTP") from anywhere along the perimeter of Bois d'Arc Lake for municipal purposes of use within NTMWD's service area. The Application is consistent with the approved 2021 Region C Water Plan and the 2022 State Water Plan.

Under Texas Water Code § 11.134, an appropriation of water must address a water supply need in a manner that is "consistent" with the "state water plan and the relevant approved regional plan." Bois d'Arc Lake, and the area for which NTMWD will divert water pursuant to this Application for use, are both located within the Region C Planning Area ("Region C"). According to the State Water Plan, Water for Texas 2022, the population in Region C is expected to increase by ninety-two percent (92%) from 2020 to 2070. This population growth is predicted to increase demands for water by sixty-seven percent (67%) between 2020 and 2070, from 1,734,000 acrefeet to 2,899,000 acre-feet. The Region C Water Plan and State Water Plan also recommend increased water reuse projects as a water management strategy in order to meet future water needs. A

The Bonham WWTP return flows sought for diversion and use by the Application will be used to meet a portion of NTMWD's municipal water demands as identified in the 2021 Region C Water Plan and the 2022 State Water Plan.⁵ As such, the Application is consistent with both the approved 2021 Region C Water Plan and the 2022 State Water Plan.

¹ Texas Water Code § 11.134(b)(3)(E).

² Texas Water Development Board ("TWDB"), 2022 State Water Plan - Water for Texas at A-49 (2021).

³ TWDB, 2022 State Water Plan - Water for Texas at A-55 (2021).

⁴ TWDB, 2022 State Water Plan – Water for Texas at A-106 (2021); Region C Water Planning Group ("Region C WPG"), 2021 Region C Water Plan at 3.8 (2021).

⁵ Region C WPG, 2021 Region C Water Plan at 5D.19-20 (2021).



TPDES PERMIT NO.
WQ0010070001
[For TCEQ office use only - EPA I.D.
No. TX0021814]

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY P.O. Box 13087 Austin, Texas 78711-3087

This is a renewal that replaces TPDES Permit No. WQ0010070001 issued on December 28, 2015.

the Commission

PERMIT TO DISCHARGE WASTES

under provisions of Section 402 of the Clean Water Act and Chapter 26 of the Texas Water Code

City of Bonham

whose mailing address is

514 Chestnut Street Bonham, Texas 75418

is authorized to treat and discharge wastes from the City of Bonham Wastewater Treatment Facility, SIC Code 4952

located at 2501 Seven Oaks Road, in Fannin County, Texas 75418

to Pig Branch; thence to Bois d'Arc Creek; thence to Red River Below Lake Texoma in Segment No. 0202 of the Red River Basin

only according to effluent limitations, monitoring requirements, and other conditions set forth in this permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ), the laws of the State of Texas, and other orders of the TCEQ. The issuance of this permit does not grant to the permittee the right to use private or public property for conveyance of wastewater along the discharge route described in this permit. This includes, but is not limited to, property belonging to any individual, partnership, corporation, or other entity. Neither does this permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This permit shall expire at midnight, five years from the date of issuance.

ISSUED DATE:

May 26, 2021

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 001

1. During the period beginning upon the date of issuance and lasting through the date of expiration, the permittee is authorized to discharge subject to the following effluent limitations:

The annual average flow of effluent shall not exceed 2.5 million gallons per day (MGD). *

Effluent Characteristic		Discharge Limitations	imitations		Min. Self-Monitoring Requirements	Requirements
	Daily Avg mg/l (lbs/day)	7-day Avg mg/l	Daily Max mg/l	Single Grab mg/l	Report Daily Avg. & Daily Max. Measurement Frequency Sample Type	k Daily Max. Sample Type
Flow, MGD	Report	N/A	Report	N/A	Continuous	Totalizing Meter
Carbonaceous Biochemical Oxygen Demand (5-day)	10 (209)	15	25	35	Two/week	Composite
Total Suspended Solids	15 (313)	25	40	09	Two/week	Composite
Ammonia Nitrogen	2 (42)	2	7	15	Two/week	Composite
E. coli, CFU or MPN/100 ml *See Other Requirement No. 8	126	N/A	399	N/A	Daily	Grab

- 2. The permittee shall utilize an Ultraviolet Light (UV) system for disinfection purposes. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.
- 3. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per week by grab sample. 4. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.
- 5. Effluent monitoring samples shall be taken at the following location(s): Following the final treatment unit.
- 6. The effluent shall contain a minimum dissolved oxygen of 6.0 mg/l and shall be monitored twice per week by grab sample.
- 7. The annual average flow shall be reported monthly.

DEFINITIONS AND STANDARD PERMIT CONDITIONS

As required by Title 30 Texas Administrative Code (TAC) Chapter 305, certain regulations appear as standard conditions in waste discharge permits. 30 TAC § 305.121 - 305.129 (relating to Permit Characteristics and Conditions) as promulgated under the Texas Water Code (TWC) §§ 5.103 and 5.105, and the Texas Health and Safety Code (THSC) §§ 361.017 and 361.024(a), establish the characteristics and standards for waste discharge permits, including sewage sludge, and those sections of 40 Code of Federal Regulations (CFR) Part 122 adopted by reference by the Commission. The following text includes these conditions and incorporates them into this permit. All definitions in TWC § 26.001 and 30 TAC Chapter 305 shall apply to this permit and are incorporated by reference. Some specific definitions of words or phrases used in this permit are as follows:

1. Flow Measurements

- a. Annual average flow the arithmetic average of all daily flow determinations taken within the preceding 12 consecutive calendar months. The annual average flow determination shall consist of daily flow volume determinations made by a totalizing meter, charted on a chart recorder and limited to major domestic wastewater discharge facilities with one million gallons per day or greater permitted flow.
- b. Daily average flow the arithmetic average of all determinations of the daily flow within a period of one calendar month. The daily average flow determination shall consist of determinations made on at least four separate days. If instantaneous measurements are used to determine the daily flow, the determination shall be the arithmetic average of all instantaneous measurements taken during that month. Daily average flow determination for intermittent discharges shall consist of a minimum of three flow determinations on days of discharge.
- c. Daily maximum flow the highest total flow for any 24-hour period in a calendar month.
- d. Instantaneous flow the measured flow during the minimum time required to interpret the flow measuring device.
- e. 2-hour peak flow (domestic wastewater treatment plants) the maximum flow sustained for a two-hour period during the period of daily discharge. The average of multiple measurements of instantaneous maximum flow within a two-hour period may be used to calculate the 2-hour peak flow.
- f. Maximum 2-hour peak flow (domestic wastewater treatment plants) the highest 2-hour peak flow for any 24-hour period in a calendar month.

2. Concentration Measurements

- a. Daily average concentration the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar month, consisting of at least four separate representative measurements.
 - i. For domestic wastewater treatment plants When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values in the previous four consecutive month period consisting of at least four measurements shall be utilized as the daily average concentration.

- ii. For all other wastewater treatment plants When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values taken during the month shall be utilized as the daily average concentration.
- b. 7-day average concentration the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar week, Sunday through Saturday.
- c. Daily maximum concentration the maximum concentration measured on a single day, by the sample type specified in the permit, within a period of one calendar month.
- d. Daily discharge the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in terms of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the sampling day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over the sampling day.
 - The daily discharge determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the daily discharge determination of concentration shall be the arithmetic average (weighted by flow value) of all samples collected during that day.
- e. Bacteria concentration (*E. coli* or Enterococci) Colony Forming Units (CFU) or Most Probable Number (MPN) of bacteria per 100 milliliters effluent. The daily average bacteria concentration is a geometric mean of the values for the effluent samples collected in a calendar month. The geometric mean shall be determined by calculating the nth root of the product of all measurements made in a calendar month, where n equals the number of measurements made; or, computed as the antilogarithm of the arithmetic mean of the logarithms of all measurements made in a calendar month. For any measurement of bacteria equaling zero, a substituted value of one shall be made for input into either computation method. If specified, the 7-day average for bacteria is the geometric mean of the values for all effluent samples collected during a calendar week.
- f. Daily average loading (lbs/day) the arithmetic average of all daily discharge loading calculations during a period of one calendar month. These calculations must be made for each day of the month that a parameter is analyzed. The daily discharge, in terms of mass (lbs/day), is calculated as (Flow, MGD x Concentration, mg/l x 8.34).
- g. Daily maximum loading (lbs/day) the highest daily discharge, in terms of mass (lbs/day), within a period of one calendar month.

3. Sample Type

a. Composite sample - For domestic wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC § 319.9 (a). For industrial wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC § 319.9 (b).

- b. Grab sample an individual sample collected in less than 15 minutes.
- 4. Treatment Facility (facility) wastewater facilities used in the conveyance, storage, treatment, recycling, reclamation and/or disposal of domestic sewage, industrial wastes, agricultural wastes, recreational wastes, or other wastes including sludge handling or disposal facilities under the jurisdiction of the Commission.
- 5. The term "sewage sludge" is defined as solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in 30 TAC Chapter 312. This includes the solids that have not been classified as hazardous waste separated from wastewater by unit processes.
- 6. The term "biosolids" is defined as sewage sludge that has been tested or processed to meet Class A, Class AB, or Class B pathogen standards in 30 TAC Chapter 312 for beneficial use.
- 7. Bypass the intentional diversion of a waste stream from any portion of a treatment facility.

MONITORING AND REPORTING REQUIREMENTS

Self-Reporting

Monitoring results shall be provided at the intervals specified in the permit. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall conduct effluent sampling and reporting in accordance with 30 TAC §§ 319.4 - 319.12. Unless otherwise specified, effluent monitoring data shall be submitted each month, to the Compliance Monitoring Team of the Enforcement Division (MC 224), by the 20th day of the following month for each discharge which is described by this permit whether or not a discharge is made for that month. Monitoring results must be submitted online using the NetDMR reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver. Monitoring results must be signed and certified as required by Monitoring and Reporting Requirements No. 10.

As provided by state law, the permittee is subject to administrative, civil and criminal penalties, as applicable, for negligently or knowingly violating the Clean Water Act (CWA); TWC §§ 26, 27, and 28; and THSC § 361, including but not limited to knowingly making any false statement, representation, or certification on any report, record, or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, or falsifying, tampering with or knowingly rendering inaccurate any monitoring device or method required by this permit or violating any other requirement imposed by state or federal regulations.

2. Test Procedures

- a. Unless otherwise specified in this permit, test procedures for the analysis of pollutants shall comply with procedures specified in 30 TAC §§ 319.11 319.12. Measurements, tests, and calculations shall be accurately accomplished in a representative manner.
- b. All laboratory tests submitted to demonstrate compliance with this permit must meet the requirements of 30 TAC § 25, Environmental Testing Laboratory Accreditation and Certification.

3. Records of Results

a. Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity.

- b. Except for records of monitoring information required by this permit related to the permittee's sewage sludge or biosolids use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), monitoring and reporting records, including strip charts and records of calibration and maintenance, copies of all records required by this permit, records of all data used to complete the application for this permit, and the certification required by 40 CFR § 264.73(b)(9) shall be retained at the facility site, or shall be readily available for review by a TCEQ representative for a period of three years from the date of the record or sample, measurement, report, application or certification. This period shall be extended at the request of the Executive Director.
- Records of monitoring activities shall include the following:
 - i. date, time and place of sample or measurement;
 - ii. identity of individual who collected the sample or made the measurement.
 - iii. date and time of analysis;
 - iv. identity of the individual and laboratory who performed the analysis;
 - v. the technique or method of analysis; and
 - vi. the results of the analysis or measurement and quality assurance/quality control records.

The period during which records are required to be kept shall be automatically extended to the date of the final disposition of any administrative or judicial enforcement action that may be instituted against the permittee.

4. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit using approved analytical methods as specified above, all results of such monitoring shall be included in the calculation and reporting of the values submitted on the approved self-report form. Increased frequency of sampling shall be indicated on the self-report form.

5. Calibration of Instruments

All automatic flow measuring or recording devices and all totalizing meters for measuring flows shall be accurately calibrated by a trained person at plant start-up and as often thereafter as necessary to ensure accuracy, but not less often than annually unless authorized by the Executive Director for a longer period. Such person shall verify in writing that the device is operating properly and giving accurate results. Copies of the verification shall be retained at the facility site and/or shall be readily available for review by a TCEQ representative for a period of three years.

6. Compliance Schedule Reports

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date to the Regional Office and the Compliance

Monitoring Team of the Enforcement Division (MC 224).

7. Noncompliance Notification

- a. In accordance with 30 TAC § 305.125(9) any noncompliance which may endanger human health or safety, or the environment shall be reported by the permittee to the TCEQ. Except as allowed by 30 TAC § 305.132, report of such information shall be provided orally or by facsimile transmission (FAX) to the Regional Office within 24 hours of becoming aware of the noncompliance. A written submission of such information shall also be provided by the permittee to the Regional Office and the Compliance Monitoring Team of the Enforcement Division (MC 224) within five working days of becoming aware of the noncompliance. For Publicly Owned Treatment Works (POTWs), effective December 21, 2023, the permittee must submit the written report for unauthorized discharges and unanticipated bypasses that exceed any effluent limit in the permit using the online electronic reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver. The written submission shall contain a description of the noncompliance and its cause; the potential danger to human health or safety, or the environment; the period of noncompliance, including exact dates and times; if the noncompliance has not been corrected, the time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, and to mitigate its adverse effects.
- b. The following violations shall be reported under Monitoring and Reporting Requirement 7.a.:
 - i. Unauthorized discharges as defined in Permit Condition 2(g).
 - ii. Any unanticipated bypass that exceeds any effluent limitation in the permit.
 - iii. Violation of a permitted maximum daily discharge limitation for pollutants listed specifically in the Other Requirements section of an Industrial TPDES permit.
- c. In addition to the above, any effluent violation which deviates from the permitted effluent limitation by more than 40% shall be reported by the permittee in writing to the Regional Office and the Compliance Monitoring Team of the Enforcement Division (MC 224) within 5 working days of becoming aware of the noncompliance.
- d. Any noncompliance other than that specified in this section, or any required information not submitted or submitted incorrectly, shall be reported to the Compliance Monitoring Team of the Enforcement Division (MC 224) as promptly as possible. For effluent limitation violations, noncompliances shall be reported on the approved self-report form.
- 8. In accordance with the procedures described in 30 TAC §§ 35.301 35.303 (relating to Water Quality Emergency and Temporary Orders) if the permittee knows in advance of the need for a bypass, it shall submit prior notice by applying for such authorization.
- Changes in Discharges of Toxic Substances
 - All existing manufacturing, commercial, mining, and silvicultural permittees shall notify the Regional Office, orally or by facsimile transmission within 24 hours, and both the Regional Office and the Compliance Monitoring Team of the Enforcement Division (MC 224) in writing within five (5) working days, after becoming aware of or having reason to believe:

- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant listed at 40 CFR Part 122, Appendix D, Tables II and III (excluding Total Phenols) which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - One hundred micrograms per liter (100 μg/L);
 - ii. Two hundred micrograms per liter (200 μ g/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 μ g/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - iii. Five (5) times the maximum concentration value reported for that pollutant in the permit application; or
 - iv. The level established by the TCEQ.
- b. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - Five hundred micrograms per liter (500 μg/L);
 - ii. One milligram per liter (1 mg/L) for antimony;
 - iii. Ten (10) times the maximum concentration value reported for that pollutant in the permit application; or
 - iv. The level established by the TCEQ.

10. Signatories to Reports

All reports and other information requested by the Executive Director shall be signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports).

- 11. All POTWs must provide adequate notice to the Executive Director of the following:
 - a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to CWA § 301 or § 306 if it were directly discharging those pollutants;
 - b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit; and
 - c. For the purpose of this paragraph, adequate notice shall include information on:
 - The quality and quantity of effluent introduced into the POTW; and
 - ii. Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

PERMIT CONDITIONS

1. General

- a. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in an application or in any report to the Executive Director, it shall promptly submit such facts or information.
- b. This permit is granted on the basis of the information supplied and representations made by the permittee during action on an application, and relying upon the accuracy and completeness of that information and those representations. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked, in whole or in part, in accordance with 30 TAC Chapter 305, Subchapter D, during its term for good cause including, but not limited to, the following:
 - i. Violation of any terms or conditions of this permit;
 - ii. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
 - iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- c. The permittee shall furnish to the Executive Director, upon request and within a reasonable time, any information to determine whether cause exists for amending, revoking, suspending or terminating the permit. The permittee shall also furnish to the Executive Director, upon request, copies of records required to be kept by the permit.

2. Compliance

- a. Acceptance of the permit by the person to whom it is issued constitutes acknowledgment and agreement that such person will comply with all the terms and conditions embodied in the permit, and the rules and other orders of the Commission.
- b. The permittee has a duty to comply with all conditions of the permit. Failure to comply with any permit condition constitutes a violation of the permit and the Texas Water Code or the Texas Health and Safety Code, and is grounds for enforcement action, for permit amendment, revocation, or suspension, or for denial of a permit renewal application or an application for a permit for another facility.
- c. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.
- d. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal or other permit violation that has a reasonable likelihood of adversely affecting human health or the environment.
- e. Authorization from the Commission is required before beginning any change in the permitted facility or activity that may result in noncompliance with any permit requirements.
- f. A permit may be amended, suspended and reissued, or revoked for cause in accordance

- with 30 TAC §§ 305.62 and 305.66 and TWC§ 7.302. The filing of a request by the permittee for a permit amendment, suspension and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- g. There shall be no unauthorized discharge of wastewater or any other waste. For the purpose of this permit, an unauthorized discharge is considered to be any discharge of wastewater into or adjacent to water in the state at any location not permitted as an outfall or otherwise defined in the Other Requirements section of this permit.
- h. In accordance with 30 TAC § 305.535(a), the permittee may allow any bypass to occur from a TPDES permitted facility which does not cause permitted effluent limitations to be exceeded or an unauthorized discharge to occur, but only if the bypass is also for essential maintenance to assure efficient operation.
- i. The permittee is subject to administrative, civil, and criminal penalties, as applicable, under TWC §§ 7.051 7.075 (relating to Administrative Penalties), 7.101 7.111 (relating to Civil Penalties), and 7.141 7.202 (relating to Criminal Offenses and Penalties) for violations including, but not limited to, negligently or knowingly violating the federal CWA §§ 301, 302, 306, 307, 308, 318, or 405, or any condition or limitation implementing any sections in a permit issued under the CWA § 402, or any requirement imposed in a pretreatment program approved under the CWA §§ 402 (a)(3) or 402 (b)(8).

3. Inspections and Entry

- a. Inspection and entry shall be allowed as prescribed in the TWC Chapters 26, 27, and 28, and THSC § 361.
- b. The members of the Commission and employees and agents of the Commission are entitled to enter any public or private property at any reasonable time for the purpose of inspecting and investigating conditions relating to the quality of water in the state or the compliance with any rule, regulation, permit or other order of the Commission. Members, employees, or agents of the Commission and Commission contractors are entitled to enter public or private property at any reasonable time to investigate or monitor or, if the responsible party is not responsive or there is an immediate danger to public health or the environment, to remove or remediate a condition related to the quality of water in the state. Members, employees, Commission contractors, or agents acting under this authority who enter private property shall observe the establishment's rules and regulations concerning safety, internal security, and fire protection, and if the property has management in residence, shall notify management or the person then in charge of his presence and shall exhibit proper credentials. If any member, employee, Commission contractor, or agent is refused the right to enter in or on public or private property under this authority, the Executive Director may invoke the remedies authorized in TWC § 7.002. The statement above, that Commission entry shall occur in accordance with an establishment's rules and regulations concerning safety, internal security, and fire protection, is not grounds for denial or restriction of entry to any part of the facility, but merely describes the Commission's duty to observe appropriate rules and regulations during an inspection.
- 4. Permit Amendment and/or Renewal

- a. The permittee shall give notice to the Executive Director as soon as possible of any planned physical alterations or additions to the permitted facility if such alterations or additions would require a permit amendment or result in a violation of permit requirements. Notice shall also be required under this paragraph when:
 - The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in accordance with 30 TAC § 305.534 (relating to New Sources and New Dischargers); or
 - ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in the permit, nor to notification requirements in Monitoring and Reporting Requirements No. 9; or
 - iii. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
- b. Prior to any facility modifications, additions, or expansions that will increase the plant capacity beyond the permitted flow, the permittee must apply for and obtain proper authorization from the Commission before commencing construction.
- c. The permittee must apply for an amendment or renewal at least 180 days prior to expiration of the existing permit in order to continue a permitted activity after the expiration date of the permit. If an application is submitted prior to the expiration date of the permit, the existing permit shall remain in effect until the application is approved, denied, or returned. If the application is returned or denied, authorization to continue such activity shall terminate upon the effective date of the action. If an application is not submitted prior to the expiration date of the permit, the permit shall expire and authorization to continue such activity shall terminate.
- d. Prior to accepting or generating wastes which are not described in the permit application or which would result in a significant change in the quantity or quality of the existing discharge, the permittee must report the proposed changes to the Commission. The permittee must apply for a permit amendment reflecting any necessary changes in permit conditions, including effluent limitations for pollutants not identified and limited by this permit.
- e. In accordance with the TWC § 26.029(b), after a public hearing, notice of which shall be given to the permittee, the Commission may require the permittee, from time to time, for good cause, in accordance with applicable laws, to conform to new or additional conditions.
- f. If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under CWA § 307(a) for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition. The permittee shall comply with effluent standards or prohibitions established under CWA § 307(a) for toxic pollutants within the time provided in the

regulations that established those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

5. Permit Transfer

- a. Prior to any transfer of this permit, Commission approval must be obtained. The Commission shall be notified in writing of any change in control or ownership of facilities authorized by this permit. Such notification should be sent to the Applications Review and Processing Team (MC 148) of the Water Quality Division.
- b. A permit may be transferred only according to the provisions of 30 TAC § 305.64 (relating to Transfer of Permits) and 30 TAC § 50.133 (relating to Executive Director Action on Application or WQMP update).

6. Relationship to Hazardous Waste Activities

This permit does not authorize any activity of hazardous waste storage, processing, or disposal that requires a permit or other authorization pursuant to the Texas Health and Safety Code.

7. Relationship to Water Rights

Disposal of treated effluent by any means other than discharge directly to water in the state must be specifically authorized in this permit and may require a permit pursuant to TWC Chapter 11.

8. Property Rights

A permit does not convey any property rights of any sort, or any exclusive privilege.

9. Permit Enforceability

The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

10. Relationship to Permit Application

The application pursuant to which the permit has been issued is incorporated herein; provided, however, that in the event of a conflict between the provisions of this permit and the application, the provisions of the permit shall control.

11. Notice of Bankruptcy

- a. Each permittee shall notify the Executive Director, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapter of Title 11 (Bankruptcy) of the United States Code (11 USC) by or against:
 - i. the permittee;
 - ii. an entity (as that term is defined in 11 USC, § 101(14)) controlling the permittee or listing the permit or permittee as property of the estate; or
 - iii. an affiliate (as that term is defined in 11 USC, § 101(2)) of the permittee.

- b. This notification must indicate:
 - i. the name of the permittee and the permit number(s);
 - ii. the bankruptcy court in which the petition for bankruptcy was filed; and
 - iv. the date of filing of the petition.

OPERATIONAL REQUIREMENTS

- 1. The permittee shall at all times ensure that the facility and all of its systems of collection, treatment, and disposal are properly operated and maintained. This includes, but is not limited to, the regular, periodic examination of wastewater solids within the treatment plant by the operator in order to maintain an appropriate quantity and quality of solids inventory as described in the various operator training manuals and according to accepted industry standards for process control. Process control, maintenance, and operations records shall be retained at the facility site, or shall be readily available for review by a TCEQ representative, for a period of three years.
- 2. Upon request by the Executive Director, the permittee shall take appropriate samples and provide proper analysis in order to demonstrate compliance with Commission rules. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall comply with all applicable provisions of 30 TAC Chapter 312 concerning sewage sludge or biosolids use and disposal and 30 TAC §§ 319.21 319.29 concerning the discharge of certain hazardous metals.
- 3. Domestic wastewater treatment facilities shall comply with the following provisions:
 - a. The permittee shall notify the Municipal Permits Team, Wastewater Permitting Section (MC 148) of the Water Quality Division, in writing, of any facility expansion at least 90 days prior to conducting such activity.
 - b. The permittee shall submit a closure plan for review and approval to the Municipal Permits Team, Wastewater Permitting Section (MC 148) of the Water Quality Division, for any closure activity at least 90 days prior to conducting such activity. Closure is the act of permanently taking a waste management unit or treatment facility out of service and includes the permanent removal from service of any pit, tank, pond, lagoon, surface impoundment and/or other treatment unit regulated by this permit.
- 4. The permittee is responsible for installing prior to plant start-up, and subsequently maintaining, adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failures by means of alternate power sources, standby generators, and/or retention of inadequately treated wastewater.
- 5. Unless otherwise specified, the permittee shall provide a readily accessible sampling point and, where applicable, an effluent flow measuring device or other acceptable means by which effluent flow may be determined.
- 6. The permittee shall remit an annual water quality fee to the Commission as required by 30 TAC Chapter 21. Failure to pay the fee may result in revocation of this permit under TWC § 7.302(b)(6).

7. Documentation

For all written notifications to the Commission required of the permittee by this permit, the permittee shall keep and make available a copy of each such notification under the same conditions as self-monitoring data are required to be kept and made available. Except for information required for TPDES permit applications, effluent data, including effluent data in permits, draft permits and permit applications, and other information specified as not confidential in 30 TAC §§ 1.5(d), any information submitted pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted in the manner prescribed in the application form or by stamping the words confidential business information on each page containing such information. If no claim is made at the time of submission, information may be made available to the public without further notice. If the Commission or Executive Director agrees with the designation of confidentiality, the TCEQ will not provide the information for public inspection unless required by the Texas Attorney General or a court pursuant to an open records request. If the Executive Director does not agree with the designation of confidentiality, the person submitting the information will be notified.

- Facilities that generate domestic wastewater shall comply with the following provisions; domestic wastewater treatment facilities at permitted industrial sites are excluded.
 - a. Whenever flow measurements for any domestic sewage treatment facility reach 75% of the permitted daily average or annual average flow for three consecutive months, the permittee must initiate engineering and financial planning for expansion and/or upgrading of the domestic wastewater treatment and/or collection facilities. Whenever the flow reaches 90% of the permitted daily average or annual average flow for three consecutive months, the permittee shall obtain necessary authorization from the Commission to commence construction of the necessary additional treatment and/or collection facilities. In the case of a domestic wastewater treatment facility which reaches 75% of the permitted daily average or annual average flow for three consecutive months, and the planned population to be served or the quantity of waste produced is not expected to exceed the design limitations of the treatment facility, the permittee shall submit an engineering report supporting this claim to the Executive Director of the Commission.

If in the judgment of the Executive Director the population to be served will not cause permit noncompliance, then the requirement of this section may be waived. To be effective, any waiver must be in writing and signed by the Director of the Enforcement Division (MC 219) of the Commission, and such waiver of these requirements will be reviewed upon expiration of the existing permit; however, any such waiver shall not be interpreted as condoning or excusing any violation of any permit parameter.

- b. The plans and specifications for domestic sewage collection and treatment works associated with any domestic permit must be approved by the Commission and failure to secure approval before commencing construction of such works or making a discharge is a violation of this permit and each day is an additional violation until approval has been secured.
- c. Permits for domestic wastewater treatment plants are granted subject to the policy of the Commission to encourage the development of area-wide waste collection, treatment, and

disposal systems. The Commission reserves the right to amend any domestic wastewater permit in accordance with applicable procedural requirements to require the system covered by this permit to be integrated into an area-wide system, should such be developed; to require the delivery of the wastes authorized to be collected in, treated by or discharged from said system, to such area-wide system; or to amend this permit in any other particular to effectuate the Commission's policy. Such amendments may be made when the changes required are advisable for water quality control purposes and are feasible on the basis of waste treatment technology, engineering, financial, and related considerations existing at the time the changes are required, exclusive of the loss of investment in or revenues from any then existing or proposed waste collection, treatment or disposal system.

- Domestic wastewater treatment plants shall be operated and maintained by sewage plant operators holding a valid certificate of competency at the required level as defined in 30 TAC Chapter 30.
- 10. For Publicly Owned Treatment Works (POTWs), the 30-day average (or monthly average) percent removal for BOD and TSS shall not be less than 85%, unless otherwise authorized by this permit.
- 11. Facilities that generate industrial solid waste as defined in 30 TAC § 335.1 shall comply with these provisions:
 - a. Any solid waste, as defined in 30 TAC § 335.1 (including but not limited to such wastes as garbage, refuse, sludge from a waste treatment, water supply treatment plant or air pollution control facility, discarded materials, discarded materials to be recycled, whether the waste is solid, liquid, or semisolid), generated by the permittee during the management and treatment of wastewater, must be managed in accordance with all applicable provisions of 30 TAC Chapter 335, relating to Industrial Solid Waste Management.
 - b. Industrial wastewater that is being collected, accumulated, stored, or processed before discharge through any final discharge outfall, specified by this permit, is considered to be industrial solid waste until the wastewater passes through the actual point source discharge and must be managed in accordance with all applicable provisions of 30 TAC Chapter 335.
 - c. The permittee shall provide written notification, pursuant to the requirements of 30 TAC § 335.8(b)(1), to the Corrective Action Section (MC 221) of the Remediation Division informing the Commission of any closure activity involving an Industrial Solid Waste Management Unit, at least 90 days prior to conducting such an activity.
 - d. Construction of any industrial solid waste management unit requires the prior written notification of the proposed activity to the Registration and Reporting Section (MC 129) of the Permitting and Registration Support Division. No person shall dispose of industrial solid waste, including sludge or other solids from wastewater treatment processes, prior to fulfilling the deed recordation requirements of 30 TAC § 335.5.
 - e. The term "industrial solid waste management unit" means a landfill, surface impoundment, waste-pile, industrial furnace, incinerator, cement kiln, injection well, container, drum, salt dome waste containment cavern, or any other structure vessel, appurtenance, or other improvement on land used to manage industrial solid waste.

- f. The permittee shall keep management records for all sludge (or other waste) removed from any wastewater treatment process. These records shall fulfill all applicable requirements of 30 TAC § 335 and must include the following, as it pertains to wastewater treatment and discharge:
 - i. Volume of waste and date(s) generated from treatment process;
 - ii. Volume of waste disposed of on-site or shipped off-site;
 - iii. Date(s) of disposal;
 - iv. Identity of hauler or transporter;
 - v. Location of disposal site; and
 - vi. Method of final disposal.

The above records shall be maintained on a monthly basis. The records shall be retained at the facility site, or shall be readily available for review by authorized representatives of the TCEQ for at least five years.

12. For industrial facilities to which the requirements of 30 TAC § 335 do not apply, sludge and solid wastes, including tank cleaning and contaminated solids for disposal, shall be disposed of in accordance with THSC § 361.

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SLUDGE PROVISIONS

The permittee is authorized to dispose of sludge only at a Texas Commission on Environmental Quality (TCEQ) authorized land application site, co-disposal landfill, wastewater treatment facility, or facility that further processes sludge. The disposal of sludge or biosolids by land application on property owned, leased or under the direct control of the permittee is a violation of the permit unless the site is authorized with the TCEQ. This provision does not authorize Distribution and Marketing of Class A or Class AB Biosolids. This provision does not authorize the permittee to land apply biosolids on property owned, leased or under the direct control of the permittee.

SECTION I. REQUIREMENTS APPLYING TO ALL SEWAGE SLUDGE OR BIOSOLIDS LAND APPLICATION

A. General Requirements

- 1. The permittee shall handle and dispose of sewage sludge or biosolids in accordance with 30 TAC § 312 and all other applicable state and federal regulations in a manner that protects public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants that may be present in the sludge or biosolids.
- 2. In all cases, if the person (permit holder) who prepares the sewage sludge supplies the sewage sludge to another person for land application use or to the owner or lease holder of the land, the permit holder shall provide necessary information to the parties who receive the sludge to assure compliance with these regulations.
- 3. The land application of processed or unprocessed chemical toilet waste, grease trap waste, grit trap waste, milk solids, or similar non-hazardous municipal or industrial solid wastes, or any of the wastes listed in this provision combined with biosolids, WTP residuals or domestic septage is prohibited unless the grease trap waste is added at a fats, oil and grease (FOG) receiving facility as part of an anaerobic digestion process.

B. Testing Requirements

1. Sewage sludge or biosolids shall be tested annually in accordance with the method specified in both 40 CFR Part 261, Appendix II and 40 CFR Part 268, Appendix I [Toxicity Characteristic Leaching Procedure (TCLP)] or other method that receives the prior approval of the TCEQ for the contaminants listed in 40 CFR Part 261.24, Table 1. Sewage sludge or biosolids failing this test shall be managed according to RCRA standards for generators of hazardous waste, and the waste's disposition must be in accordance with all applicable requirements for hazardous waste processing, storage, or disposal. Following failure of any TCLP test, the management or disposal of sewage sludge or biosolids at a facility other than an authorized hazardous waste processing, storage, or disposal facility shall be prohibited until such time as the permittee can demonstrate the sewage sludge or biosolids no longer exhibits the hazardous waste toxicity characteristics (as demonstrated by the results of the TCLP tests). A written report shall be provided to both the TCEQ Registration and Reporting Section (MC 129) of the Permitting and Registration Support Division and the Regional Director (MC Region 4) within seven (7) days after failing the TCLP Test.

The report shall contain test results, certification that unauthorized waste management has stopped and a summary of alternative disposal plans that comply with RCRA standards for the management of hazardous waste. The report shall be addressed to: Director, Permitting and Registration Support Division (MC 129), Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087. In addition, the permittee shall prepare an annual report on the results of all sludge toxicity testing. This annual report shall be submitted to the TCEQ Regional Office (MC Region 4) and the Compliance Monitoring Team (MC 224) of the Enforcement Division by September 30th of each year. Effective December 21, 2020, the permittee must submit this annual report using the online electronic reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver.

Biosolids shall not be applied to the land if the concentration of the pollutants exceeds
the pollutant concentration criteria in Table 1. The frequency of testing for pollutants in
Table 1 is found in Section I.C. of this permit.

TABLE 1

Pollutant	<u>Ceiling Concentration</u> (Milligrams per kilogram)*
Arsenic	75
Cadmium	85
Chromium	3000
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
PCBs	49
Selenium	100
Zinc	7500

^{*} Dry weight basis

3. Pathogen Control

All sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site must be treated by one of the following methods to ensure that the sludge meets either the Class A, Class AB or Class B biosolids pathogen requirements.

a. For sewage sludge to be classified as Class A biosolids with respect to pathogens, the density of fecal coliform in the sewage sludge must be less than 1,000 most probable number (MPN) per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge must be less than three MPN per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed. In addition, one of the alternatives listed below must be met:

Alternative 1 - The temperature of the sewage sludge that is used or disposed shall be maintained at or above a specific value for a period of time. See 30 TAC § 312.82(a)(2)(A) for specific information;

Alternative 5 (PFRP) - Sewage sludge that is used or disposed of must be treated in one of the Processes to Further Reduce Pathogens (PFRP) described in 40 CFR Part 503, Appendix B. PFRP include composting, heat drying, heat treatment, and thermophilic aerobic digestion; or

Alternative 6 (PFRP Equivalent) - Sewage sludge that is used or disposed of must be treated in a process that has been approved by the U. S. Environmental Protection Agency as being equivalent to those in Alternative 5.

b. For sewage sludge to be classified as Class AB biosolids with respect to pathogens, the density of fecal coliform in the sewage sludge must be less than 1,000 MPN per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge be less than three MPN per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed. In addition, one of the alternatives listed below must be met:

<u>Alternative 2</u> - The pH of the sewage sludge that is used or disposed shall be raised to above 12 std. units and shall remain above 12 std. units for 72 hours.

The temperature of the sewage sludge shall be above 52° Celsius for 12 hours or longer during the period that the pH of the sewage sludge is above 12 std. units.

At the end of the 72-hour period during which the pH of the sewage sludge is above 12 std. units, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50%; or

Alternative 3 - The sewage sludge shall be analyzed for enteric viruses prior to pathogen treatment. The limit for enteric viruses is less than one Plaque-forming Unit per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 30 TAC § 312.82(a)(2)(C)(i-iii) for specific information. The sewage sludge shall be analyzed for viable helminth ova prior to pathogen treatment. The limit for viable helminth ova is less than one per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 30 TAC § 312.82(a)(2)(C)(iv-vi) for specific information; or

<u>Alternative 4</u> - The density of enteric viruses in the sewage sludge shall be less than one Plaque-forming Unit per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed. The density of viable helminth ova in the sewage sludge shall be less than one per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed.

- c. Sewage sludge that meets the requirements of Class AB biosolids may be classified a Class A biosolids if a variance request is submitted in writing that is supported by substantial documentation demonstrating equivalent methods for reducing odors and written approval is granted by the executive director. The executive director may deny the variance request or revoke that approved variance if it is determined that the variance may potentially endanger human health or the environment, or create nuisance odor conditions.
- d. Three alternatives are available to demonstrate compliance with Class B biosolids

criteria.

Alternative 1

- A minimum of seven random samples of the sewage sludge shall be collected within 48 hours of the time the sewage sludge is used or disposed of during each monitoring episode for the sewage sludge.
- ii. The geometric mean of the density of fecal coliform in the samples collected shall be less than either 2,000,000 MPN per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

<u>Alternative 2</u> - Sewage sludge that is used or disposed of shall be treated in one of the Processes to Significantly Reduce Pathogens (PSRP) described in 40 CFR Part 503, Appendix B, so long as all of the following requirements are met by the generator of the sewage sludge.

- i. Prior to use or disposal, all the sewage sludge must have been generated from a single location, except as provided in paragraph v. below;
- ii. An independent Texas Licensed Professional Engineer must make a certification to the generator of a sewage sludge that the wastewater treatment facility generating the sewage sludge is designed to achieve one of the PSRP at the permitted design loading of the facility. The certification need only be repeated if the design loading of the facility is increased. The certification shall include a statement indicating the design meets all the applicable standards specified in Appendix B of 40 CFR Part 503;
- iii. Prior to any off-site transportation or on-site use or disposal of any sewage sludge generated at a wastewater treatment facility, the chief certified operator of the wastewater treatment facility or other responsible official who manages the processes to significantly reduce pathogens at the wastewater treatment facility for the permittee, shall certify that the sewage sludge underwent at least the minimum operational requirements necessary in order to meet one of the PSRP. The acceptable processes and the minimum operational and record keeping requirements shall be in accordance with established U.S. Environmental Protection Agency final guidance;
- iv. All certification records and operational records describing how the requirements of this paragraph were met shall be kept by the generator for a minimum of three years and be available for inspection by commission staff for review; and
- v. If the sewage sludge is generated from a mixture of sources, resulting from a person who prepares sewage sludge from more than one wastewater treatment facility, the resulting derived product shall meet one of the PSRP, and shall meet the certification, operation, and record keeping requirements of this paragraph.

<u>Alternative 3</u> - Sewage sludge shall be treated in an equivalent process that has been approved by the U.S. Environmental Protection Agency, so long as all of the following requirements are met by the generator of the sewage sludge.

i. Prior to use or disposal, all the sewage sludge must have been generated from a

single location, except as provided in paragraph v. below;

- ii. Prior to any off-site transportation or on-site use or disposal of any sewage sludge generated at a wastewater treatment facility, the chief certified operator of the wastewater treatment facility or other responsible official who manages the processes to significantly reduce pathogens at the wastewater treatment facility for the permittee, shall certify that the sewage sludge underwent at least the minimum operational requirements necessary in order to meet one of the PSRP. The acceptable processes and the minimum operational and record keeping requirements shall be in accordance with established U.S. Environmental Protection Agency final guidance;
- iii. All certification records and operational records describing how the requirements of this paragraph were met shall be kept by the generator for a minimum of three years and be available for inspection by commission staff for review;
- iv. The Executive Director will accept from the U.S. Environmental Protection Agency a finding of equivalency to the defined PSRP; and
- v. If the sewage sludge is generated from a mixture of sources resulting from a person who prepares sewage sludge from more than one wastewater treatment facility, the resulting derived product shall meet one of the Processes to Significantly Reduce Pathogens, and shall meet the certification, operation, and record keeping requirements of this paragraph.

In addition to the Alternatives 1-3, the following site restrictions must be met if Class B biosolids are land applied:

- Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of biosolids.
- ii. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of biosolids when the biosolids remain on the land surface for 4 months or longer prior to incorporation into the soil.
- iii. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of biosolids when the biosolids remain on the land surface for less than 4 months prior to incorporation into the soil.
- Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of biosolids.
- v. Domestic livestock shall not be allowed to graze on the land for 30 days after application of biosolids.
- vi. Turf grown on land where biosolids are applied shall not be harvested for 1 year after application of the biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn.
- vii. Public access to land with a high potential for public exposure shall be restricted for 1 year after application of biosolids.

- viii. Public access to land with a low potential for public exposure shall be restricted for 30 days after application of biosolids.
- ix. Land application of biosolids shall be in accordance with the buffer zone requirements found in 30 TAC § 312.44.

4. Vector Attraction Reduction Requirements

All bulk sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site shall be treated by one of the following Alternatives 1 through 10 for vector attraction reduction.

- Alternative 1 The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38%.
- Alternative 2 If Alternative 1 cannot be met for an anaerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30° and 37° Celsius. Volatile solids must be reduced by less than 17% to demonstrate compliance.
- Alternative 3 If Alternative 1 cannot be met for an aerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge with percent solids of two percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20° Celsius. Volatile solids must be reduced by less than 15% to demonstrate compliance.
- Alternative 4 The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20° Celsius.
- Alternative 5 Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40° Celsius and the average temperature of the sewage sludge shall be higher than 45° Celsius.
- Alternative 6 The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali shall remain at 12 or higher for two hours and then remain at a pH of 11.5 or higher for an additional 22 hours at the time the sewage sludge is prepared for sale or given away in a bag or other container.
- Alternative 7 The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75% based on the moisture content and total solids prior to mixing with other materials. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Alternative 8 -

The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90% based on the moisture content and total solids prior to mixing with other materials at the time the sludge is used. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Alternative 9 -

- i. Biosolids shall be injected below the surface of the land.
- ii. No significant amount of the biosolids shall be present on the land surface within one hour after the biosolids are injected.
- iii. When sewage sludge that is injected below the surface of the land is Class A or Class AB with respect to pathogens, the biosolids shall be injected below the land surface within eight hours after being discharged from the pathogen treatment process.

Alternative 10-

- i. Biosolids applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.
- ii. When biosolids that are incorporated into the soil is Class A or Class AB with respect to pathogens, the biosolids shall be applied to or placed on the land within eight hours after being discharged from the pathogen treatment process.

C. Monitoring Requirements

Toxicity Characteristic Leaching Procedure - annually (TCLP) Test
PCBs - annually

All metal constituents and fecal coliform or *Salmonella* sp. bacteria shall be monitored at the appropriate frequency shown below, pursuant to 30 TAC § 312.46(a)(1):

Amount of biosolids (*) metric tons per 365-day period	Monitoring Frequency
o to less than 290	Once/Year
290 to less than 1,500	Once/Quarter
1,500 to less than 15,000	Once/Two Months
15,000 or greater	Once/Month

(*) The amount of bulk biosolids applied to the land (dry wt. basis).

Representative samples of sewage sludge shall be collected and analyzed in accordance with the methods referenced in 30 TAC § 312.7

Identify each of the analytic methods used by the facility to analyze enteric viruses, fecal coliforms, helminth ova, *Salmonella* sp., and other regulated parameters.

Identify in the following categories (as applicable) the sewage sludge or biosolids treatment process or processes at the facility: preliminary operations (e.g., sludge or biosolids grinding and degritting), thickening (concentration), stabilization, anaerobic digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation, sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or biogas capture and recovery.

Identify the nature of material generated by the facility (such as a biosolid for beneficial use or land-farming, or sewage sludge or biosolids for disposal at a monofill) and whether the material is ultimately conveyed off-site in bulk or in bags.

SECTION II. REQUIREMENTS SPECIFIC TO BULK SEWAGE SLUDGE OR BIOSOLIDS FOR APPLICATION TO THE LAND MEETING CLASS A, CLASS AB or B PATHOGEN REDUCTION AND THE CUMULATIVE LOADING RATES IN TABLE 2, OR CLASS B PATHOGEN REDUCTION AND THE POLLUTANT CONCENTRATIONS IN TABLE 3

For those permittees meeting Class A, Class AB or B pathogen reduction requirements and that meet the cumulative loading rates in Table 2 below, or the Class B pathogen reduction requirements and contain concentrations of pollutants below listed in Table 3, the following conditions apply:

A. Pollutant Limits

Table 2

	Cumulative Pollutant Loading Rate
Pollutant	(pounds per acre)*
Arsenic	36
Cadmium	35
Chromium	2677
Copper	1339
Lead	268
Mercury	15
Molybdenum	Report Only
Nickel	375
Selenium	89
Zinc	2500

Table 3

	Monthly Average
	Concentration
Pollutant	(milligrams per kilogram)*
Arsenic	41
Cadmium	39
Chromium	1200
Copper	1500
Lead	300
Mercury	17
Molybdenum	Report Only
Nickel	420
Selenium	36
Zinc	2800
	*Dry weight basis

B. Pathogen Control

All bulk sewage sludge that is applied to agricultural land, forest, a public contact site, a reclamation site, shall be treated by either Class A, Class AB or Class B biosolids pathogen reduction requirements as defined above in Section I.B.3.

C. Management Practices

- 1. Bulk biosolids shall not be applied to agricultural land, forest, a public contact site, or a reclamation site that is flooded, frozen, or snow-covered so that the bulk sewage sludge enters a wetland or other waters in the State.
- 2. Bulk biosolids not meeting Class A requirements shall be land applied in a manner which complies with Applicability in accordance with 30 TAC §312.41 and the Management Requirements in accordance with 30 TAC § 312.44.
- 3. Bulk biosolids shall be applied at or below the agronomic rate of the cover crop.
- 4. An information sheet shall be provided to the person who receives bulk Class A or AB biosolids sold or given away. The information sheet shall contain the following information:
 - a. The name and address of the person who prepared the Class A or AB biosolids that are sold or given away in a bag or other container for application to the land.
 - b. A statement that application of the biosolids to the land is prohibited except in accordance with the instruction on the label or information sheet.
 - c. The annual whole sludge application rate for the biosolids application rate for the biosolids that does not cause any of the cumulative pollutant loading rates in Table 2 above to be exceeded, unless the pollutant concentrations in Table 3 found in Section II above are met.

D. Notification Requirements

- 1. If bulk is applied to land in a State other than Texas, written notice shall be provided prior to the initial land application to the permitting authority for the State in which the bulk biosolids are proposed to be applied. The notice shall include:
 - a. The location, by street address, and specific latitude and longitude, of each land application site.
 - b. The approximate time period bulk biosolids will be applied to the site.
 - c. The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) for the person who will apply the bulk biosolids.
- 2. The permittee shall give 180 days prior notice to the Executive Director in care of the Wastewater Permitting Section (MC 148) of the Water Quality Division of any change planned in the biosolids disposal practice.

E. Record keeping Requirements

The documents will be retained at the facility site and/or shall be readily available for review by a TCEQ representative. The person who prepares bulk sewage sludge or a biosolids material shall develop the following information and shall retain the information at the facility site and/or shall be readily available for review by a TCEQ representative for a

period of <u>five years</u>. If the permittee supplies the sludge to another person who land applies the sludge, the permittee shall notify the land applier of the requirements for record keeping found in 30 TAC § 312.47 for persons who land apply.

- 1. The concentration (mg/kg) in the sludge of each pollutant listed in Table 3 above and the applicable pollutant concentration criteria (mg/kg), or the applicable cumulative pollutant loading rate and the applicable cumulative pollutant loading rate limit (lbs/ac) listed in Table 2 above.
- 2. A description of how the pathogen reduction requirements are met (including site restrictions for Class AB and Class B biosolids, if applicable).
- 3. A description of how the vector attraction reduction requirements are met.
- 4. A description of how the management practices listed above in Section II.C are being met.
- 5. The following certification statement:

"I certify, under penalty of law, that the applicable pathogen requirements in 30 TAC § 312.82(a) or (b) and the vector attraction reduction requirements in 30 TAC § 312.83(b) have been met for each site on which bulk biosolids are applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

- 6. The recommended agronomic loading rate from the references listed in Section II.C.3. above, as well as the actual agronomic loading rate shall be retained. The person who applies bulk biosolids shall develop the following information and shall retain the information at the facility site and/or shall be readily available for review by a TCEQ representative <u>indefinitely</u>. If the permittee supplies the sludge to another person who land applies the sludge, the permittee shall notify the land applier of the requirements for record keeping found in 30 TAC § 312.47 for persons who land apply:
 - a. A certification statement that all applicable requirements (specifically listed) have been met, and that the permittee understands that there are significant penalties for false certification including fine and imprisonment. See 30 TAC § 312.47(a)(4)(A)(ii) or 30 TAC § 312.47(a)(5)(A)(ii), as applicable, and to the permittee's specific sludge treatment activities.
 - b. The location, by street address, and specific latitude and longitude, of each site on which biosolids are applied.
 - c. The number of acres in each site on which bulk biosolids are applied.
 - d. The date and time biosolids are applied to each site.
 - e. The cumulative amount of each pollutant in pounds/acre listed in Table 2 applied to each site.
 - f. The total amount of biosolids applied to each site in dry tons.

The above records shall be maintained on-site on a monthly basis and shall be made available to the Texas Commission on Environmental Quality upon request.

F. Reporting Requirements

The permittee shall report annually to the TCEQ Regional Office (MC Region 4) and Compliance Monitoring Team (MC 224) of the Enforcement Division, by September 30th of each year the following information. Effective December 21, 2020, the permittee must submit this annual report using the online electronic reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver.

- Identify in the following categories (as applicable) the sewage sludge or biosolids
 treatment process or processes at the facility: preliminary operations (e.g., sludge or
 biosolids grinding and degritting), thickening (concentration), stabilization, anaerobic
 digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray
 irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation,
 sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or
 biogas capture and recovery.
- 2. Identify the nature of material generated by the facility (such as a biosolid for beneficial use or land-farming, or sewage sludge for disposal at a monofill) and whether the material is ultimately conveyed off-site in bulk or in bags.
- 3. Results of tests performed for pollutants found in either Table 2 or 3 as appropriate for the permittee's land application practices.
- 4. The frequency of monitoring listed in Section I.C. that applies to the permittee.
- 5. Toxicity Characteristic Leaching Procedure (TCLP) results.
- 6. PCB concentration in sludge or biosolids in mg/kg.
- 7. Identity of hauler(s) and TCEQ transporter number.
- 8. Date(s) of transport.
- 9. Texas Commission on Environmental Quality registration number, if applicable.
- 10. Amount of sludge or biosolids disposal dry weight (lbs/acre) at each disposal site.
- 11. The concentration (mg/kg) in the sludge of each pollutant listed in Table 1 (defined as a monthly average) as well as the applicable pollutant concentration criteria (mg/kg) listed in Table 3 above, or the applicable pollutant loading rate limit (lbs/acre) listed in Table 2 above if it exceeds 90% of the limit.
- 12. Level of pathogen reduction achieved (Class A, Class AB or Class B).
- 13. Alternative used as listed in Section I.B.3.(a. or b.). Alternatives describe how the pathogen reduction requirements are met. If Class B biosolids, include information on how site restrictions were met.
- 14. Identify each of the analytic methods used by the facility to analyze enteric viruses, fecal coliforms, helminth ova, *Salmonella* sp., and other regulated parameters.
- 15. Vector attraction reduction alternative used as listed in Section I.B.4.

- 16. Amount of sludge or biosolids transported in dry tons/year.
- 17. The certification statement listed in either 30 TAC § 312.47(a)(4)(A)(ii) or 30 TAC § 312.47(a)(5)(A)(ii) as applicable to the permittee's sludge or biosolids treatment activities, shall be attached to the annual reporting form.
- 18. When the amount of any pollutant applied to the land exceeds 90% of the cumulative pollutant loading rate for that pollutant, as described in Table 2, the permittee shall report the following information as an attachment to the annual reporting form.
 - a. The location, by street address, and specific latitude and longitude.
 - b. The number of acres in each site on which bulk biosolids are applied.
 - c. The date and time bulk biosolids are applied to each site.
 - d. The cumulative amount of each pollutant (i.e., pounds/acre) listed in Table 2 in the bulk biosolids applied to each site.
 - e. The amount of biosolids (i.e., dry tons) applied to each site.

The above records shall be maintained on a monthly basis and shall be made available to the Texas Commission on Environmental Quality upon request.

SECTION III. REQUIREMENTS APPLYING TO ALL SEWAGE SLUDGE OR BIOSOLIDS DISPOSED IN A MUNICIPAL SOLID WASTE LANDFILL

- A. The permittee shall handle and dispose of sewage sludge or biosolids in accordance with 30 TAC § 330 and all other applicable state and federal regulations to protect public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants that may be present. The permittee shall ensure that the sewage sludge meets the requirements in 30 TAC § 330 concerning the quality of the sludge or biosolids disposed in a municipal solid waste landfill.
- B. If the permittee generates sewage sludge and supplies that sewage sludge or biosolids to the owner or operator of a municipal solid waste landfill (MSWLF) for disposal, the permittee shall provide to the owner or operator of the MSWLF appropriate information needed to be in compliance with the provisions of this permit.
- C. The permittee shall give 180 days prior notice to the Executive Director in care of the Wastewater Permitting Section (MC 148) of the Water Quality Division of any change planned in the sewage sludge or biosolids disposal practice.
- D. Sewage sludge or biosolids shall be tested annually in accordance with the method specified in both 40 CFR Part 261, Appendix II and 40 CFR Part 268, Appendix I (Toxicity Characteristic Leaching Procedure) or other method, which receives the prior approval of the TCEQ for contaminants listed in Table 1 of 40 CFR § 261.24. Sewage sludge or biosolids failing this test shall be managed according to RCRA standards for generators of hazardous waste, and the waste's disposition must be in accordance with all applicable requirements for hazardous waste processing, storage, or disposal.

Following failure of any TCLP test, the management or disposal of sewage sludge or biosolids at a facility other than an authorized hazardous waste processing, storage, or disposal facility shall be prohibited until such time as the permittee can demonstrate the sewage sludge or biosolids no longer exhibits the hazardous waste toxicity characteristics (as demonstrated by the results of the TCLP tests). A written report shall be provided to both the TCEQ Registration and Reporting Section (MC 129) of the Permitting and Registration Support Division and the Regional Director (MC Region 4) of the appropriate TCEQ field office within 7 days after failing the TCLP Test.

The report shall contain test results, certification that unauthorized waste management has stopped and a summary of alternative disposal plans that comply with RCRA standards for the management of hazardous waste. The report shall be addressed to: Director, Permitting and Registration Support Division (MC 129), Texas Commission on Environmental Quality, P. O. Box 13087, Austin, Texas 78711-3087. In addition, the permittee shall prepare an annual report on the results of all sludge toxicity testing. This annual report shall be submitted to the TCEQ Regional Office (MC Region 4) and the Compliance Monitoring Team (MC 224) of the Enforcement Division by September 30 of each year.

- E. Sewage sludge or biosolids shall be tested as needed, in accordance with the requirements of 30 TAC Chapter 330.
- F. Record keeping Requirements

The permittee shall develop the following information and shall retain the information for five years.

- The description (including procedures followed and the results) of all liquid Paint Filter Tests performed.
- 2. The description (including procedures followed and results) of all TCLP tests performed.

The above records shall be maintained on-site on a monthly basis and shall be made available to the Texas Commission on Environmental Quality upon request.

G. Reporting Requirements

The permittee shall report annually to the TCEQ Regional Office (MC Region 4) and Compliance Monitoring Team (MC 224) of the Enforcement Division by September 30th of each year the following information. Effective December 21, 2020, the permittee must submit this annual report using the online electronic reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver.

- Identify in the following categories (as applicable) the sewage sludge or biosolids
 treatment process or processes at the facility: preliminary operations (e.g., sludge or
 biosolids grinding and degritting), thickening (concentration), stabilization, anaerobic
 digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray
 irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation,
 sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or
 biogas capture and recovery.
- 2. Toxicity Characteristic Leaching Procedure (TCLP) results.
- 3. Annual sludge or biosolids production in dry tons/year.
- Amount of sludge or biosolids disposed in a municipal solid waste landfill in dry tons/year.
- 5. Amount of sludge or biosolids transported interstate in dry tons/year.
- 6. A certification that the sewage sludge or biosolids meets the requirements of 30 TAC § 330 concerning the quality of the sludge disposed in a municipal solid waste landfill.
- 7. Identity of hauler(s) and transporter registration number.
- 8. Owner of disposal site(s).
- Location of disposal site(s).
- 10. Date(s) of disposal.

The above records shall be maintained on-site on a monthly basis and shall be made available to the Texas Commission on Environmental Quality upon request.

SECTION IV. REQUIREMENTS APPLYING TO SLUDGE OR BIOSOLIDS TRANSPORTED TO ANOTHER FACILITY FOR FURTHER PROCESSING

These provisions apply to sludge or biosolids that is transported to another wastewater treatment facility or facility that further processes sludge or biosolids. These provisions are intended to allow transport of sludge or biosolids to facilities that have been authorized to accept sludge or biosolids. These provisions do not limit the ability of the receiving facility to determine whether to accept the sludge or biosolids, nor do they limit the ability of the receiving facility to request additional testing or documentation.

A. General Requirements

- 1. The permittee shall handle and dispose of sewage sludge or biosolids in accordance with 30 TAC Chapter 312 and all other applicable state and federal regulations in a manner that protects public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants that may be present in the sludge.
- 2. Sludge or biosolids may only be transported using a registered transporter or using an approved pipeline.

B. Record Keeping Requirements

- 1. For sludge transported by an approved pipeline, the permittee must maintain records of the following:
 - a. the amount of sludge or biosolids transported;
 - b. the date of transport;
 - c. the name and TCEQ permit number of the receiving facility or facilities;
 - d. the location of the receiving facility or facilities;
 - e. the name and TCEQ permit number of the facility that generated the waste; and
 - f. copy of the written agreement between the permittee and the receiving facility to accept sludge or biosolids.
- 2. For sludge or biosolids transported by a registered transporter, the permittee must maintain records of the completed trip tickets in accordance with 30 TAC § 312.145(a)(1)-(7) and amount of sludge or biosolids transported.
- 3. The above records shall be maintained on-site on a monthly basis and shall be made available to the TCEQ upon request. These records shall be retained for at least five years.

C. Reporting Requirements

The permittee shall report the following information annually to the TCEQ Regional Office (MC Region 4) and Compliance Monitoring Team (MC 224) of the Enforcement Division, by September 30th of each year. Effective December 21, 2020, the permittee must submit this annual report using the online electronic reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver.

- Identify in the following categories (as applicable) the sewage sludge or biosolids
 treatment process or processes at the facility: preliminary operations (e.g., sludge or
 biosolids grinding and degritting), thickening (concentration), stabilization, anaerobic
 digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray
 irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation,
 sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or
 biogas capture and recovery.
- 2. the annual sludge or biosolids production;
- 3. the amount of sludge or biosolids transported;
- the owner of each receiving facility;
- 5. the location of each receiving facility; and
- 6. the date(s) of disposal at each receiving facility.

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OTHER REQUIREMENTS

The permittee shall employ or contract with one or more licensed wastewater treatment
facility operators or wastewater system operations companies holding a valid license or
registration according to the requirements of 30 TAC Chapter 30, Occupational Licenses and
Registrations, and in particular 30 TAC Chapter 30, Subchapter J, Wastewater Operators
and Operations Companies.

This Category B facility must be operated by a chief operator or an operator holding a Class B license or higher. The facility must be operated a minimum of five days per week by the licensed chief operator or an operator holding the required level of license or higher. The licensed chief operator or operator holding the required level of license or higher must be available by telephone or pager seven days per week. Where shift operation of the wastewater treatment facility is necessary, each shift that does not have the on-site supervision of the licensed chief operator must be supervised by an operator in charge who is licensed not less than one level below the category for the facility.

- 2. The facility is not located in the Coastal Management Program boundary.
- 3. There is no mixing zone established for this discharge to an intermittent stream with perennial pools. Chronic toxic criteria apply at the point of discharge.
- 4. The permittee shall comply with the requirements of 30 TAC § 309.13(a) through (d). In addition, by ownership of the required buffer zone area, the permittee shall comply with the requirements of 30 TAC § 309.13(e).
- 5. The permittee shall provide facilities for the protection of its wastewater treatment facility from a 100-year flood.
- 6. In accordance with 30 TAC § 319.9, a permittee that has at least twelve months of uninterrupted compliance with its bacteria limit may notify the commission in writing of its compliance and request a less frequent measurement schedule. To request a less frequent schedule, the permittee shall submit a written request to the TCEQ Wastewater Permitting Section (MC 148) for each phase that includes a different monitoring frequency. The request must contain all of the reported bacteria values (Daily Avg. and Daily Max/Single Grab) for the twelve consecutive months immediately prior to the request. If the Executive Director finds that a less frequent measurement schedule is protective of human health and the environment, the permittee may be given a less frequent measurement schedule. For this permit, daily may be reduced to 5/week. A violation of any bacteria limit by a facility that has been granted a less frequent measurement schedule will require the permittee to return to the standard frequency schedule and submit written notice to the TCEQ Wastewater Permitting Section (MC 148). The permittee may not apply for another reduction in measurement frequency for at least 24 months from the date of the last violation. The Executive Director may establish a more frequent measurement schedule if necessary to protect human health or the environment.
- 7. The permittee shall secure the Plans and Specs approval regardless whether the facility is modified or not prior to routing 100% of the flow to the sequential batch reactors. The permittee shall submit to the TCEQ Wastewater Permitting Section (MC 148) a summary transmittal letter in accordance with the requirements in 30 TAC § 217.6(c). If requested by the Wastewater Permitting Section, the permittee shall submit plans, specifications, and a

final engineering design report which comply with 30 TAC Chapter 217, Design Criteria for Domestic Wastewater Systems. The permittee shall clearly show how the treatment system will meet the effluent limitations required on Page 2 of this permit.

If the permittee notifies the TCEQ Wastewater Permitting Section (MC 148), c/o Municipal Permits Team, that it can meet the effluent limits when routing 100% of the flow to the sequential batch reactors without additional construction of wastewater treatment units, then this requirement is waived. The notification shall be signed and sealed by a civil or environmental engineer registered in the State of Texas.

This provision is continued from the permit issued on December 28, 2015 which has not been complied with to date.

8. This facility is designed for batch discharge. Maximum 2-hour peak flow limits are not included in the permit. The permittee shall operate the disinfection facilities to insure that the effluent complies with permit limits for bacteria. This provision does not limit or restrict future inclusion of peak flow limits.

CONTRIBUTING INDUSTRIES AND PRETREATMENT REQUIREMENTS

- 1. The following pollutants may not be introduced into the treatment facility:
 - a. Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW), including, but not limited to, waste streams with a closed-cup flash point of less than 140° Fahrenheit (60° Celsius) using the test methods specified in 40 CFR § 261.21;
 - b. Pollutants which will cause corrosive structural damage to the POTW, but in no case shall there be discharges with a pH lower than 5.0 standard units, unless the works are specifically designed to accommodate such discharges;
 - c. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW, resulting in Interference;
 - d. Any pollutant, including oxygen-demanding pollutants (e.g., biochemical oxygen demand), released in a discharge at a flow rate and/or pollutant concentration which will cause Interference with the POTW;
 - e. Heat in amounts which will inhibit biological activity in the POTW, resulting in Interference, but in no case shall there be heat in such quantities that the temperature at the POTW treatment plant exceeds 104° Fahrenheit (40° Celsius) unless the Executive Director, upon request of the POTW, approves alternate temperature limits;
 - f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause Interference or Pass Through;
 - g. Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems; and
 - h. Any trucked or hauled pollutants except at discharge points designated by the POTW.
- 2. The permittee shall require any indirect discharger to the treatment works to comply with the reporting requirements of Sections 204(b), 307, and 308 of the Clean Water Act, including any requirements established under 40 CFR Part 403 [rev. Federal Register/Vol. 70/No. 198/Friday, October 14, 2005/Rules and Regulations, pages 60134-60798].
- 3. The permittee shall provide adequate notification to the Executive Director, care of the Wastewater Permitting Section (MC 148) of the Water Quality Division, within 30 days subsequent to the permittee's knowledge of either of the following:
 - a. Any new introduction of pollutants into the treatment works from an indirect discharger which would be subject to Sections 301 and 306 of the Clean Water Act if it were directly discharging those pollutants; and
 - b. Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of the permit.

Any notice shall include information on the quality and quantity of effluent to be introduced into the treatment works and any anticipated impact of the change on the quality or quantity of effluent to be discharged from the POTW.

Revised July 2007

BIOMONITORING REQUIREMENTS

CHRONIC BIOMONITORING REQUIREMENTS: FRESHWATER

The provisions of this section apply to Outfall 001 for whole effluent toxicity (WET) testing.

Scope, Frequency, and Methodology

- a. The permittee shall test the effluent for toxicity in accordance with the provisions below. Such testing will determine if an appropriately dilute effluent sample adversely affects the survival, reproduction, or growth of the test organisms.
- b. The permittee shall conduct the following toxicity tests using the test organisms, procedures, and quality assurance requirements specified in this part of this permit and in accordance with "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," fourth edition (EPA-821-R-02-013) or its most recent update:
 - 1) Chronic static renewal survival and reproduction test using the water flea (*Ceriodaphnia dubia*) (Method 1002.0). This test should be terminated when 60% of the surviving adults in the control produce three broods or at the end of eight days, whichever occurs first. This test shall be conducted once per quarter.
 - 2) Chronic static renewal 7-day larval survival and growth test using the fathead minnow (*Pimephales promelas*) (Method 1000.0). A minimum of five replicates with eight organisms per replicate shall be used in the control and in each dilution. This test shall be conducted once per quarter.

The permittee must perform and report a valid test for each test species during the prescribed reporting period. An invalid test must be repeated during the same reporting period. An invalid test is defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods and permit.

- c. The permittee shall use five effluent dilution concentrations and a control in each toxicity test. These effluent dilution concentrations are 32%, 42%, 56%, 75%, and 100% effluent. The critical dilution, defined as 100% effluent, is the effluent concentration representative of the proportion of effluent in the receiving water during critical low flow or critical mixing conditions.
- d. This permit may be amended to require a WET limit, a chemical-specific effluent limit, a best management practice, or other appropriate actions to address toxicity. The permittee may be required to conduct a toxicity reduction evaluation (TRE) after multiple toxic events.
- e. Testing Frequency Reduction
 - 1) If none of the first four consecutive quarterly tests demonstrates significant toxicity, the permittee may submit this information in writing

- and, upon approval, reduce the testing frequency to once per six months for the invertebrate test species and once per year for the vertebrate test species.
- 2) If one or more of the first four consecutive quarterly tests demonstrates significant toxicity, the permittee shall continue quarterly testing for that species until this permit is reissued. If a testing frequency reduction had been previously granted and a subsequent test demonstrates significant toxicity, the permittee shall resume a quarterly testing frequency for that species until this permit is reissued.

2. Required Toxicity Testing Conditions

- a. Test Acceptance The permittee shall repeat any toxicity test, including the control and all effluent dilutions, which fail to meet the following criteria:
 - a control mean survival of 80% or greater;
 - a control mean number of water flea neonates per surviving adult of 15 or greater;
 - a control mean dry weight of surviving fathead minnow larvae of 0.25 mg or greater;
 - a control coefficient of variation percent (CV%) of 40 or less in between replicates for the young of surviving females in the water flea test; and the growth and survival endpoints in the fathead minnow test;
 - a critical dilution CV% of 40 or less for the young of surviving females in the water flea test; and the growth and survival endpoints for the fathead minnow test. However, if statistically significant lethal or nonlethal effects are exhibited at the critical dilution, a CV% greater than 40 shall not invalidate the test;
 - 6) a percent minimum significant difference of 47 or less for water flea reproduction; and
 - 7) a percent minimum significant difference of 30 or less for fathead minnow growth.

b. Statistical Interpretation

- 1) For the water flea survival test, the statistical analyses used to determine if there is a significant difference between the control and an effluent dilution shall be the Fisher's exact test as described in the manual referenced in in Part 1.b.
- 2) For the water flea reproduction test and the fathead minnow larval survival and growth tests, the statistical analyses used to determine if there is a significant difference between the control and an effluent dilution shall be in accordance with the manual referenced in Part 1.b..

- 3) The permittee is responsible for reviewing test concentration-response relationships to ensure that calculated test-results are interpreted and reported correctly. The document entitled "Method Guidance and Recommendation for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)" (EPA 821-B-00-004) provides guidance on determining the validity of test results.
- 4) If significant lethality is demonstrated (that is, there is a statistically significant difference in survival at the critical dilution when compared to the survival in the control), the conditions of test acceptability are met, and the survival of the test organisms are equal to or greater than 80% in the critical dilution and all dilutions below that, then the permittee shall report a survival No Observed Effect Concentration (NOEC) of not less than the critical dilution for the reporting requirements.
- 5) The NOEC is defined as the greatest effluent dilution at which no significant effect is demonstrated. The Lowest Observed Effect Concentration (LOEC) is defined as the lowest effluent dilution at which a significant effect is demonstrated. A significant effect is defined as a statistically significant difference between the survival, reproduction, or growth of the test organism in a specified effluent dilution when compared to the survival, reproduction, or growth of the test organism in the control (0% effluent).
- 6) The use of NOECs and LOECs assumes either a monotonic (continuous) concentration-response relationship or a threshold model of the concentration-response relationship. For any test result that demonstrates a non-monotonic (non-continuous) response, the NOEC should be determined based on the guidance manual referenced in Item 3.
- 7) Pursuant to the responsibility assigned to the permittee in Part 2.b.3), test results that demonstrate a non-monotonic (non-continuous) concentration-response relationship may be submitted, prior to the due date, for technical review. The guidance manual referenced in Item 3 will be used when making a determination of test acceptability.
- 8) TCEQ staff will review test results for consistency with rules, procedures, and permit requirements.

c. Dilution Water

- Dilution water used in the toxicity tests must be the receiving water collected at a point upstream of the discharge point as close as possible to the discharge point but unaffected by the discharge. Where the toxicity tests are conducted on effluent discharges to receiving waters that are classified as intermittent streams, or where the toxicity tests are conducted on effluent discharges where no receiving water is available due to zero flow conditions, the permittee shall:
 - a) substitute a synthetic dilution water that has a pH, hardness, and

- alkalinity similar to that of the closest downstream perennial water unaffected by the discharge; or
- b) use the closest downstream perennial water unaffected by the discharge.
- 2) Where the receiving water proves unsatisfactory as a result of pre-existing instream toxicity (i.e. fails to fulfill the test acceptance criteria of Part 2.a.), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:
 - a) a synthetic lab water control was performed (in addition to the receiving water control) which fulfilled the test acceptance requirements of Part 2.a;
 - b) the test indicating receiving water toxicity was carried out to completion (i.e., 7 days); and
 - c) the permittee submitted all test results indicating receiving water toxicity with the reports and information required in Part 3.
- 3) The synthetic dilution water shall consist of standard, moderately hard, reconstituted water. Upon approval, the permittee may substitute other appropriate dilution water with chemical and physical characteristics similar to that of the receiving water.

d. Samples and Composites

- 1) The permittee shall collect a minimum of three composite samples from Outfall 001. The second and third composite samples will be used for the renewal of the dilution concentrations for each toxicity test.
- 2) The permittee shall collect the composite samples such that the samples are representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance being discharged on an intermittent basis.
- 3) The permittee shall initiate the toxicity tests within 36 hours after collection of the last portion of the first composite sample. The holding time for any subsequent composite sample shall not exceed 72 hours. Samples shall be maintained at a temperature of 0-6 degrees Centigrade during collection, shipping, and storage.
- 4) If Outfall 001 ceases discharging during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions, and the sample holding time are waived during that sampling period. However, the permittee must have collected an effluent composite sample volume sufficient to complete the required toxicity tests with renewal of the effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate

days if the discharge occurs over multiple days. The sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report.

5) The effluent samples shall not be dechlorinated after sample collection.

Reporting

All reports, tables, plans, summaries, and related correspondence required in this section shall be submitted to the attention of the Standards Implementation Team (MC 150) of the Water Quality Division.

- a. The permittee shall prepare a full report of the results of all tests conducted in accordance with the manual referenced in Part 1.b. for every valid and invalid toxicity test initiated whether carried to completion or not.
- b. The permittee shall routinely report the results of each biomonitoring test on the Table 1 forms provided with this permit.
 - 1) Annual biomonitoring test results are due on or before January 20th for biomonitoring conducted during the previous 12-month period.
 - 2) Semiannual biomonitoring test results are due on or before July 20th and January 20th for biomonitoring conducted during the previous 6-month period.
 - Quarterly biomonitoring test results are due on or before April 20th, July 20th, October 20th, and January 20th for biomonitoring conducted during the previous calendar quarter.
 - 4) Monthly biomonitoring test results are due on or before the 20th day of the month following sampling.
- c. Enter the following codes for the appropriate parameters for valid tests only:
 - 1) For the water flea, Parameter TLP3B, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
 - 2) For the water flea, Parameter TOP3B, report the NOEC for survival.
 - For the water flea, Parameter TXP3B, report the LOEC for survival.
 - 4) For the water flea, Parameter TWP3B, enter a "1" if the NOEC for reproduction is less than the critical dilution; otherwise, enter a "o."
 - 5) For the water flea, Parameter TPP3B, report the NOEC for reproduction.
 - 6) For the water flea, Parameter TYP3B, report the LOEC for reproduction.
 - 7) For the fathead minnow, Parameter TLP6C, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."

- 8) For the fathead minnow, Parameter TOP6C, report the NOEC for survival.
- 9) For the fathead minnow, Parameter TXP6C, report the LOEC for survival.
- 10) For the fathead minnow, Parameter TWP6C, enter a "1" if the NOEC for growth is less than the critical dilution; otherwise, enter a "0."
- 11) For the fathead minnow, Parameter TPP6C, report the NOEC for growth.
- 12) For the fathead minnow, Parameter TYP6C, report the LOEC for growth.
- d. Enter the following codes for retests only:
 - 1) For retest number 1, Parameter 22415, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
 - 2) For retest number 2, Parameter 22416, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."

Persistent Toxicity

The requirements of this Part apply only when a test demonstrates a significant effect at the critical dilution. Significant lethality and significant effect were defined in Part 2.b. Significant sublethality is defined as a statistically significant difference in growth/reproduction at the critical dilution when compared to the growth/reproduction in the control.

- a. The permittee shall conduct a total of 2 additional tests (retests) for any species that demonstrates a significant effect (lethal or sublethal) at the critical dilution. The two retests shall be conducted monthly during the next two consecutive months. The permittee shall not substitute either of the two retests in lieu of routine toxicity testing. All reports shall be submitted within 20 days of test completion. Test completion is defined as the last day of the test.
- b. If the retests are performed due to a demonstration of significant lethality, and one or both of the two retests specified in Part 4.a. demonstrates significant lethality, the permittee shall initiate the TRE requirements as specified in Part 5. The provisions of Part 4.a. are suspended upon completion of the two retests and submittal of the TRE action plan and schedule defined in Part 5.

If neither test demonstrates significant lethality and the permittee is testing under the reduced testing frequency provision of Part 1.e., the permittee shall return to a quarterly testing frequency for that species.

- c. If the two retests are performed due to a demonstration of significant sublethality, and one or both of the two retests specified in Part 4.a. demonstrates significant lethality, the permittee shall again perform two retests as stipulated in Part 4.a.
- d. If the two retests are performed due to a demonstration of significant

- sublethality, and neither test demonstrates significant lethality, the permittee shall continue testing at the quarterly frequency.
- e. Regardless of whether retesting for lethal or sublethal effects, or a combination of the two, no more than one retest per month is required for a species.

Toxicity Reduction Evaluation

- a. Within 45 days of the retest that demonstrates significant lethality, or within 45 days of being so instructed due to multiple toxic events, the permittee shall submit a general outline for initiating a TRE. The outline shall include, but not be limited to, a description of project personnel, a schedule for obtaining consultants (if needed), a discussion of influent and effluent data available for review, a sampling and analytical schedule, and a proposed TRE initiation date.
- b. Within 90 days of the retest that demonstrates significant lethality, or within 90 days of being so instructed due to multiple toxic events, the permittee shall submit a TRE action plan and schedule for conducting a TRE. The plan shall specify the approach and methodology to be used in performing the TRE. A TRE is a step-wise investigation combining toxicity testing with physical and chemical analyses to determine actions necessary to eliminate or reduce effluent toxicity to a level not effecting significant lethality at the critical dilution. The TRE action plan shall describe an approach for the reduction or elimination of lethality for both test species defined in Part 1.b. At a minimum, the TRE action plan shall include the following:
 - Specific Activities The TRE action plan shall specify the approach the 1) permittee intends to utilize in conducting the TRE, including toxicity characterizations, identifications, confirmations, source evaluations, treatability studies, and alternative approaches. When conducting characterization analyses, the permittee shall perform multiple characterizations and follow the procedures specified in the document entitled "Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I" (EPA/600/6-91/005F) or alternate procedures. The permittee shall perform multiple identifications and follow the methods specified in the documents entitled "Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081). All characterization, identification, and confirmation tests shall be conducted in an orderly and logical progression;
 - 2) Sampling Plan The TRE action plan should describe sampling locations, methods, holding times, chain of custody, and preservation techniques. The effluent sample volume collected for all tests shall be adequate to perform the toxicity characterization/identification/confirmation procedures, and chemical-specific analyses when the toxicity tests show significant lethality. Where the permittee has identified or suspects a specific pollutant and source of effluent toxicity, the permittee shall

- conduct, concurrent with toxicity testing, chemical-specific analyses for the identified and suspected pollutant and source of effluent toxicity;
- Quality Assurance Plan The TRE action plan should address record keeping and data evaluation, calibration and standardization, baseline tests, system blanks, controls, duplicates, spikes, toxicity persistence in the samples, randomization, reference toxicant control charts, and mechanisms to detect artifactual toxicity; and
- 4) Project Organization The TRE action plan should describe the project staff, project manager, consulting engineering services (where applicable), consulting analytical and toxicological services, etc.
- c. Within 30 days of submittal of the TRE action plan and schedule, the permittee shall implement the TRE.
- d. The permittee shall submit quarterly TRE activities reports concerning the progress of the TRE. The quarterly reports are due on or before April 20th, July 20th, October 20th, and January 20th. The report shall detail information regarding the TRE activities including:
 - results and interpretation of any chemical-specific analyses for the identified and suspected pollutant performed during the quarter;
 - 2) results and interpretation of any characterization, identification, and confirmation tests performed during the quarter;
 - any data and substantiating documentation which identifies the pollutant(s) and source of effluent toxicity;
 - 4) results of any studies/evaluations concerning the treatability of the facility's effluent toxicity;
 - 5) any data that identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant lethality at the critical dilution; and
 - any changes to the initial TRE plan and schedule that are believed necessary as a result of the TRE findings.

Copies of the TRE activities report shall also be submitted to the U.S. EPA Region 6 office.

- e. During the TRE, the permittee shall perform, at a minimum, quarterly testing using the more sensitive species. Testing for the less sensitive species shall continue at the frequency specified in Part 1.b.
- f. If the effluent ceases to effect significant lethality, i.e., there is a cessation of lethality, the permittee may end the TRE. A cessation of lethality is defined as no significant lethality for a period of 12 consecutive months with at least monthly testing. At the end of the 12 months, the permittee shall submit a statement of

intent to cease the TRE and may then resume the testing frequency specified in Part 1.b.

This provision accommodates situations where operational errors and upsets, spills, or sampling errors triggered the TRE, in contrast to a situation where a single toxicant or group of toxicants cause lethality. This provision does not apply as a result of corrective actions taken by the permittee. Corrective actions are defined as proactive efforts that eliminate or reduce effluent toxicity. These include, but are not limited to, source reduction or elimination, improved housekeeping, changes in chemical usage, and modifications of influent streams and effluent treatment.

The permittee may only apply this cessation of lethality provision once. If the effluent again demonstrates significant lethality to the same species, the permit will be amended to add a WET limit with a compliance period, if appropriate. However, prior to the effective date of the WET limit, the permittee may apply for a permit amendment removing and replacing the WET limit with an alternate toxicity control measure by identifying and confirming the toxicant and an appropriate control measure.

- g. The permittee shall complete the TRE and submit a final report on the TRE activities no later than 28 months from the last test day of the retest that confirmed significant lethal effects at the critical dilution. The permittee may petition the Executive Director (in writing) for an extension of the 28-month limit. However, to warrant an extension the permittee must have demonstrated due diligence in its pursuit of the toxicity identification evaluation/TRE and must prove that circumstances beyond its control stalled the toxicity identification evaluation/TRE. The report shall provide information pertaining to the specific control mechanism selected that will, when implemented, result in the reduction of effluent toxicity to no significant lethality at the critical dilution. The report shall also provide a specific corrective action schedule for implementing the selected control mechanism. A copy of the TRE final report shall also be submitted to the U.S. EPA Region 6 office.
- h. Based on the results of the TRE and proposed corrective actions, this permit may be amended to modify the biomonitoring requirements, where necessary, require a compliance schedule for implementation of corrective actions, specify a WET limit, specify a best management practice, and specify a chemical-specific limit.

TABLE 1 (SHEET 1 OF 4)

BIOMONITORING REPORTING

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

		Date Time		Date	Time
Dates and Times Composites	No.1 FROM:		TO:	110 00 00 00 00 00 00 00 00 00 00 00 00	
Collected	No. 2 FROM:		TO:	***	
	No. 3 FROM:_		_ TO: _		
Test initiated:		am/pm			date
Dilution wa	ater used:	Receiving water	-	Sy	nthetic Dilution water

NUMBER OF YOUNG PRODUCED PER ADULT AT END OF TEST

	Percent effluent								
REP	0%	32%	42%	56%	75%	100%			
A									
В									
С									
D									
Е									
F									
G									
Н									
I									
J						2			
Survival Mean									
Total Mean									
CV%*									
PMSD									

^{*}Coefficient of Variation = standard deviation x 100/mean (calculation based on young of the surviving adults)

Designate males (M), and dead females (D), along with number of neonates (x) released prior to death.

TABLE 1 (SHEET 2 OF 4)

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean number of young produced per adult significantly less than the number of young per adult in the control for the % effluent corresponding to significant nonlethal effects?

CRITICAL DILUTION	(100%):	YES	NO

PERCENT SURVIVAL

	Percent effluent							
Time of Reading	0%	32%	42%	56%	75%	100%		
24h								
48h								
End of Test								

2. Fisher's Exact Test:

Is the mean survival at test end significantly less than the control survival for the % effluent corresponding to lethality?

CRITICAL DILUTION	(100%):	YES	NO
CLUTTOTH BIBOTION	(200,0).		

- 3. Enter percent effluent corresponding to each NOEC\LOEC below:
 - a.) NOEC survival = ______% effluent
 - b.) LOEC survival = ______% effluent
 - c.) NOEC reproduction = ______% effluent
 - d.) LOEC reproduction = ______ % effluent

TABLE 1 (SHEET 3 OF 4)

BIOMONITORING REPORTING

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL

Dates and Times	No. 1 FRO	Date M:	Time			Date Tir	
Composites Collected							
Test initiated:							
Dilution wat	er used:	Reco	eiving w	ater _		_ Synthetic	dilution water
	F	ATHEAD M	INNOW	GROW	TH DAT	'A	
Effluent Average Dry Weight in replicate chambers					Mean Dry	CV%*	
Concentration	A	В	С	D	Е	Weigh	The state of the s
0%							
32%							
42%							
56%							
75%							
100%							
PMSD							
Bonferroni a	ocedure or St djustment) o dry weight (g the % effluen	teel's Many-(r t-test (with rowth) at 7 d	One Ran Bonfern lays sign ling to s	nk Test o roni adj nificantly ignifica	ustment) y less tha nt nonlet	as appropo n the contr hal effects?	ol's dry weight

TABLE 1 (SHEET 4 OF 4)

BIOMONITORING REPORTING

FATHEAD MINNOW GROWTH AND SURVIVAL TEST

FATHEAD MINNOW SURVIVAL DATA

Effluent	Percei	nt Surviv	al in repl	licate cha	ambers	Mean percent survival			CV%*
Concentration	A	В	С	D	Е	24h	24h 48h 7 day		
0%									
32%									
42%									
56%									20
75%									
100%									

^{*} Coefficient of Variation = standard deviation x 100/mean

2.	Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:						
	Is the mean survival at 7 days significantly less than the control survival for the $\%$ effluent corresponding to lethality?						
	CRITICAL DILUTION (100%):YESNO						
3.	Enter percent effluent corresponding to each NOEC\LOEC below:						
	a.) NOEC survival =% effluent						
	b.) LOEC survival =% effluent						
	c.) NOEC growth =% effluent						
	d.) LOEC growth =% effluent						

24-HOUR ACUTE BIOMONITORING REQUIREMENTS: FRESHWATER

The provisions of this section apply to Outfall 001 for whole effluent toxicity (WET) testing.

1. Scope, Frequency, and Methodology

- a. The permittee shall test the effluent for lethality in accordance with the provisions in this section. Such testing will determine compliance with Texas Surface Water Quality Standard 30 TAC § 307.6(e)(2)(B), which requires greater than 50% survival of the appropriate test organisms in 100% effluent for a 24-hour period.
- b. The toxicity tests specified shall be conducted once per six months. The permittee shall conduct the following toxicity tests using the test organisms, procedures, and quality assurance requirements specified in this section of the permit and in accordance with "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms," fifth edition (EPA-821-R-02-012) or its most recent update:
 - 1) Acute 24-hour static toxicity test using the water flea (*Daphnia pulex* or *Ceriodaphnia dubia*). A minimum of five replicates with eight organisms per replicate shall be used in the control and each dilution.
 - 2) Acute 24-hour static toxicity test using the fathead minnow (*Pimephales promelas*). A minimum of five replicates with eight organisms per replicate shall be used in the control and each dilution.

A valid test result must be submitted for each reporting period. The permittee must report, and then repeat, an invalid test during the same reporting period. The repeat test shall include the control and the 100% effluent dilution and use the appropriate number of organisms and replicates, as specified above. An invalid test is defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods and permit.

- c. In addition to an appropriate control, a 100% effluent concentration shall be used in the toxicity tests. Except as discussed in item 2.b., the control and dilution water shall consist of standard, synthetic, moderately hard, reconstituted water.
- d. This permit may be amended to require a WET limit, a Best Management Practice (BMP), Chemical-Specific (CS) limits, or other appropriate actions to address toxicity. The permittee may be required to conduct a Toxicity Reduction Evaluation after multiple toxic events.
- e. As the dilution series specified in the Chronic Biomonitoring Requirements includes a 100% effluent concentration, the results from those tests may fulfill the requirements of this Section; any tests performed in the proper time interval may be substituted. Compliance will be evaluated as specified in item a. The 50% survival in 100% effluent for a 24-hour period standard applies to all tests utilizing a 100% effluent dilution, regardless of whether the results are submitted to comply with the minimum testing frequency defined in item b.

2. Required Toxicity Testing Conditions

- a. Test Acceptance The permittee shall repeat any toxicity test, including the control, if the control fails to meet a mean survival equal to or greater than 90%.
- b. Dilution Water In accordance with item 1.c., the control and dilution water shall normally consist of standard, synthetic, moderately hard, reconstituted water. If the permittee utilizes the results of a chronic test to satisfy the requirements in item 1.e., the permittee may use the receiving water or dilution water that meets the requirements of item 2.a as the control and dilution water.

c. Samples and Composites

- 1) The permittee shall collect one composite sample from Outfall 001.
- 2) The permittee shall collect the composite sample such that the sample is representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance being discharged.
- 3) The permittee shall initiate the toxicity tests within 36 hours after collection of the last portion of the composite sample. The sample shall be maintained at a temperature of o-6 degrees Centigrade during collection, shipping, and storage.
- 4) If Outfall 001 ceases discharging during the collection of the effluent composite sample, the requirements for the minimum number of effluent portions are waived. However, the permittee must have collected a composite sample volume sufficient for completion of the required test. The abbreviated sample collection, duration, and methodology must be documented in the full report.
- 5) The effluent sample shall not be dechlorinated after sample collection.

Reporting

All reports, tables, plans, summaries, and related correspondence required in this section shall be submitted to the attention of the Standards Implementation Team (MC 150) of the Water Quality Division.

- a. The permittee shall prepare a full report of the results of all tests conducted in accordance with the manual referenced in Part 1.b. for every valid and invalid toxicity test initiated.
- b. The permittee shall routinely report the results of each biomonitoring test on the Table 2 forms provided with this permit.
 - Semiannual biomonitoring test results are due on or before July 20th and January 20th for biomonitoring conducted during the previous 6-month period.

- Quarterly biomonitoring test results are due on or before April 20th, July 20th, and October 20th, and January 20th for biomonitoring conducted during the previous calendar quarter.
- c. Enter the following codes for the appropriate parameters for valid tests only:
 - 1) For the water flea, Parameter TIE3D, enter a "0" if the mean survival at 24 hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
 - 2) For the fathead minnow, Parameter TIE6C, enter a "0" if the mean survival at 24 hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
- d. Enter the following codes for retests only:
 - 1) For retest number 1, Parameter 22415, enter a "0" if the mean survival at 24 hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
 - 2) For retest number 2, Parameter 22416, enter a "0" if the mean survival at 24 hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."

Persistent Mortality

The requirements of this part apply when a toxicity test demonstrates significant lethality, which is defined as a mean mortality of 50% or greater of organisms exposed to the 100% effluent concentration for 24 hours.

- a. The permittee shall conduct 2 additional tests (retests) for each species that demonstrates significant lethality. The two retests shall be conducted once per week for 2 weeks. Five effluent dilution concentrations in addition to an appropriate control shall be used in the retests. These effluent concentrations are 6%, 13%, 25%, 50% and 100% effluent. The first retest shall be conducted within 15 days of the laboratory determination of significant lethality. All test results shall be submitted within 20 days of test completion of the second retest. Test completion is defined as the 24th hour.
- b. If one or both of the two retests specified in Part 4.a. demonstrates significant lethality, the permittee shall initiate the TRE requirements as specified in Part 5.

5. <u>Toxicity Reduction Evaluation</u>

- a. Within 45 days of the retest that demonstrates significant lethality, the permittee shall submit a general outline for initiating a TRE. The outline shall include, but not be limited to, a description of project personnel, a schedule for obtaining consultants (if needed), a discussion of influent and effluent data available for review, a sampling and analytical schedule, and a proposed TRE initiation date.
- b. Within 90 days of the retest that demonstrates significant lethality, the permittee

shall submit a TRE action plan and schedule for conducting a TRE. The plan shall specify the approach and methodology to be used in performing the TRE. A TRE is a step-wise investigation combining toxicity testing with physical and chemical analyses to determine actions necessary to eliminate or reduce effluent toxicity to a level not effecting significant lethality at the critical dilution. The TRE action plan shall lead to the successful elimination of significant lethality for both test species defined in Part 1.b. At a minimum, the TRE action plan shall include the following:

- Specific Activities The TRE action plan shall specify the approach the 1) permittee intends to utilize in conducting the TRE, including toxicity characterizations, identifications, confirmations, source evaluations, treatability studies, and alternative approaches. When conducting characterization analyses, the permittee shall perform multiple characterizations and follow the procedures specified in the document entitled "Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures" (EPA/600/6-91/003) or alternate procedures. The permittee shall perform multiple identifications and follow the methods specified in the documents entitled "Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081). All characterization, identification, and confirmation tests shall be conducted in an orderly and logical progression;
- Sampling Plan The TRE action plan should describe sampling locations, methods, holding times, chain of custody, and preservation techniques. The effluent sample volume collected for all tests shall be adequate to perform the toxicity characterization/identification/confirmation procedures and chemical-specific analyses when the toxicity tests show significant lethality. Where the permittee has identified or suspects specific pollutant and source of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical-specific analyses for the identified and suspected pollutant and source of effluent toxicity;
- Quality Assurance Plan The TRE action plan should address record keeping and data evaluation, calibration and standardization, baseline tests, system blanks, controls, duplicates, spikes, toxicity persistence in the samples, randomization, reference toxicant control charts, and mechanisms to detect artifactual toxicity; and
- 4) Project Organization The TRE Action Plan should describe the project staff, project manager, consulting engineering services (where applicable), consulting analytical and toxicological services, etc.
- c. Within 30 days of submittal of the TRE action plan and schedule, the permittee shall implement the TRE.
- d. The permittee shall submit quarterly TRE activities reports concerning the

progress of the TRE. The quarterly TRE activities reports are due on or before April 20th, July 20th, October 20th, and January 20th. The report shall detail information regarding the TRE activities including:

- 1) results and interpretation of any chemical-specific analyses for the identified and suspected pollutant performed during the quarter;
- 2) results and interpretation of any characterization, identification, and confirmation tests performed during the quarter;
- any data and substantiating documentation that identifies the pollutant and source of effluent toxicity;
- results of any studies/evaluations concerning the treatability of the facility's effluent toxicity;
- 5) any data that identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to eliminate significant lethality; and
- any changes to the initial TRE plan and schedule that are believed necessary as a result of the TRE findings.

Copies of the TRE activities report shall also be submitted to the U.S. EPA Region 6 office.

- e. During the TRE, the permittee shall perform, at a minimum, quarterly testing using the more sensitive species. Testing for the less sensitive species shall continue at the frequency specified in Part 1.b.
- f. If the effluent ceases to effect significant lethality, i.e., there is a cessation of lethality, the permittee may end the TRE. A cessation of lethality is defined as no significant lethality for a period of 12 consecutive weeks with at least weekly testing. At the end of the 12 weeks, the permittee shall submit a statement of intent to cease the TRE and may then resume the testing frequency specified in Part 1.b.

This provision accommodates situations where operational errors and upsets, spills, or sampling errors triggered the TRE, in contrast to a situation where a single toxicant or group of toxicants cause lethality. This provision does not apply as a result of corrective actions taken by the permittee. Corrective actions are defined as proactive efforts that eliminate or reduce effluent toxicity. These include, but are not limited to, source reduction or elimination, improved housekeeping, changes in chemical usage, and modifications of influent streams and effluent treatment.

The permittee may only apply this cessation of lethality provision once. If the effluent again demonstrates significant lethality to the same species, the permit will be amended to add a WET limit with a compliance period, if appropriate. However, prior to the effective date of the WET limit, the permittee may apply for a permit amendment removing and replacing the WET limit with an alternate

- toxicity control measure by identifying and confirming the toxicant and an appropriate control measure.
- g. The permittee shall complete the TRE and submit a final report on the TRE activities no later than 18 months from the last test day of the retest that demonstrates significant lethality. The permittee may petition the Executive Director (in writing) for an extension of the 18-month limit. However, to warrant an extension the permittee must have demonstrated due diligence in its pursuit of the toxicity identification evaluation/TRE and must prove that circumstances beyond its control stalled the toxicity identification evaluation/TRE. The report shall specify the control mechanism that will, when implemented, reduce effluent toxicity as specified in Part 5.h. The report shall also specify a corrective action schedule for implementing the selected control mechanism. A copy of the TRE final report shall also be submitted to the U.S. EPA Region 6 office.
- h. Within 3 years of the last day of the test confirming toxicity, the permittee shall comply with 30 TAC § 307.6(e)(2)(B), which requires greater than 50% survival of the test organism in 100% effluent at the end of 24-hours. The permittee may petition the Executive Director (in writing) for an extension of the 3-year limit. However, to warrant an extension the permittee must have demonstrated due diligence in its pursuit of the toxicity identification evaluation/TRE and must prove that circumstances beyond its control stalled the toxicity identification evaluation/TRE.
 - The permittee may be exempted from complying with 30 TAC § 307.6(e)(2)(B) upon proving that toxicity is caused by an excess, imbalance, or deficiency of dissolved salts. This exemption excludes instances where individually toxic components (e.g., metals) form a salt compound. Following the exemption, this permit may be amended to include an ion-adjustment protocol, alternate species testing, or single species testing.
- i. Based upon the results of the TRE and proposed corrective actions, this permit may be amended to modify the biomonitoring requirements where necessary, require a compliance schedule for implementation of corrective actions, specify a WET limit, specify a best management practice, and specify a chemical-specific limit.

TABLE 2 (SHEET 1 OF 2)

WATER FLEA SURVIVAL

GENERAL INFORMATION

	Time	Date
Composite Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Time	Don			Percent	t effluent		
Time	Rep	0%	6%	13%	25%	50%	100%
	A						
	В						
ouh	С						
24h	D						
	E						
	MEAN						

Entern	orcont	offluent	correspond	ling to	thal	CEO	halow.
Enter D	ercent	emuent	correspond	mig to	me L	1050	below.

24 hour LC50 = _____% effluent

TABLE 2 (SHEET 2 OF 2)

FATHEAD MINNOW SURVIVAL

GENERAL INFORMATION

	Time	Date
Composite Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Time	Rep	Percent effluent						
		0%	6%	13%	25%	50%	100%	
24h	A							
	В							
	С							
	D							
	E							
	MEAN							

Enter percent	effluent	correspond	ing to	the L	.C50 b	elow:
---------------	----------	------------	--------	-------	--------	-------

24 hour LC50 = _____% effluent

Tab 8: Addendum to Worksheet 5.0.

2(e)(1). See below for photos of the perimeter of Bois d'Arc Lake as the diversion point requested is from anywhere along the perimeter. The photo is facing the intake structure located at the bottom of the photo.





3(a)(i). The proposed diversions will not negatively affect downstream, instream uses. The proposed diversions will not negatively affect bays and estuaries because the diversion point is located greater than 200 miles from the coast. Therefore, permit conditions are not required to maintain beneficial inflows to an affected bay and estuary system.

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	5		
			,

*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



THE STATE OF TEXAS COUNTY OF TRAVIS

I HEREBY CERTIFY THAT THIS IS ATRIE AND CORRECT COPY
OF A TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
DOCUMENT, WHICH IS FILED IN THE PERMANENT RECORDS

JUN 2 9 2015

OF THE COMMISSION, GIVEN UNDER MY HAND AND THE

PERMIT NO. 12151

TYPE §§ 11.121, 11.085, TYAS COMPRISSION

Permittee:

North Texas Municipal Water

Address:

P.O. Box 2408 Wylie, TX 75098

District

Granted:

June 26, 2015

Filed:

June 26, 2007

Purposes:

Municipal, Industrial,

Counties:

Collin, Dallas, Denton,

Agricultural, and Recreation

Fannin, Hopkins, Hunt, Kaufman, Rains and

Rockwall Counties

Watercourse: Lower Bois d'Arc Creek, tributary of the Red River Watershed:

Red, Trinity, and

Sulphur River Basins

WHEREAS, North Texas Municipal Water District (NTMWD, Applicant or Permittee) seeks a Water Use Permit to construct and maintain a dam and reservoir (Lower Bois d'Arc Creek Reservoir) with a maximum normal operating capacity of 367,609 acre-feet of water and a surface area of 16,526 acres on Bois d'Arc Creek, tributary of the Red River, Red River Basin in Fannin County for recreation purposes; and

WHEREAS, Applicant also seeks authorization to divert and use not to exceed 175,000 acre-feet of water per year from any point on the perimeter of the proposed reservoir at a maximum combined diversion rate of 365.15 cfs (163,889 gpm) for municipal, industrial and agricultural purposes; and

WHEREAS, Applicant seeks authorization to reuse the return flows generated from the diversion and use of water from the proposed reservoir and until facilities are developed to reuse diverted water, such water will be returned to the Red, Sulphur, and Trinity River Basins; and

WHEREAS, Applicant also seeks an interbasin transfer authorization to use the water within the Trinity River Basin, and within that portion of Fannin County located in the Sulphur River Basin. NTMWD's service area is currently located within Collin, Dallas, Denton, Fannin, Hopkins, Hunt, Kaufman, Rains and Rockwall Counties; and

WHEREAS, Applicant indicates the proposed Lower Bois d'Arc Creek Reservoir will be located 15.2 miles in a northeast direction from City of Bonham and 9.7 miles in a northnorthwest direction from the Town of Honey Grove. Station 42+33 on the centerline of the proposed dam will be S 23.2677° E, 514 feet from the southeast corner of O.H.P. Wood Survey, Abstract No. 1177, in Fannin County, Texas, also being at 33.7180° N Latitude, 95.9822° W

Longitude. The proposed dam will be located in the George W. King Original Survey, Abstract No. 604; the James Kerr Original Survey, Abstract No. 614; and the John Reynolds Original Survey, Abstract 931 in Fannin County, Texas. The proposed dam and reservoir will be located on the land of the Applicant, which will be acquired prior to construction; and

WHEREAS, Applicant indicates that diversions may overdraft the firm yield of the reservoir as part of a system operation with existing NTMWD supplies to achieve maximum conservation of limited water resources; and

WHEREAS, this application is subject to the obligations of the state of Texas pursuant to the terms of the Red River Compact; and

WHEREAS, the Texas Commission on Environmental Quality (TCEQ) finds that jurisdiction over the application is established; and

WHEREAS, Applicant submitted the *Proposed Lower Bois d'Arc Creek Reservoir Mitigation Plan*, which was accepted and approved by the Executive Director; and

WHEREAS, Applicant submitted the North Texas Municipal Water District Reservoir Accounting Plan, which was accepted and approved by the Executive Director; and

WHEREAS, Applicant submitted the North Texas Municipal Water District Monitoring Plan for Proposed Lower Bois d'Arc Creek Reservoir, which was accepted and approved by the Executive Director; and

WHEREAS, the Executive Director recommends that special conditions be included in the permit; and

WHEREAS, multiple requests for a contested case hearing on the application were granted; and

WHEREAS, as a result of negotiations with all parties, all hearing requests were withdrawn; and

WHEREAS, the Commission has complied with the requirements of the Texas Water Code and Rules of the Texas Commission on Environmental Quality in issuing this water use permit;

NOW, THEREFORE, this Water Use Permit No. 12151 is issued to North Texas Municipal Water District subject to the following terms and conditions:

IMPOUNDMENT

Permittee is authorized to construct and maintain a dam and reservoir (Lower Bois d'Arc Creek Reservoir) with a maximum normal operating capacity of 367,609 acre-feet of water on Bois d'Arc Creek, tributary of the Red River, Red River Basin in Fannin County located 15.2 miles in a northeast direction from City of Bonham and 9.7 miles in a north-northwest direction from the Town of Honey Grove. Station 42+33 on the centerline of the proposed dam will be S 23.2677° E, 514 feet from the southeast corner of O.H.P. Wood Survey, Abstract No. 1177, in Fannin County, Texas, also being at 33.7180° N Latitude, 95.9822° W Longitude. The proposed dam will be located in the George W. King Original Survey, Abstract No. 604 the James Kerr Original Survey, Abstract No. 614; and the John Reynolds Original Survey, Abstract 931 in Fannin County, Texas.

USE

- Permittee is authorized to use the impounded water for recreation purposes.
- B. Permittee is authorized to divert and use not to exceed 175,000 acre-feet of water per year for municipal, industrial and agricultural purposes within its service area in Collin, Dallas, Denton, Fannin, Hopkins, Hunt, Kaufman, Rains and Rockwall Counties.
- C. Permittee is authorized an interbasin transfer to use the water appropriated hereunder within the Trinity River Basin, and within that portion of Fannin County located in the Sulphur River Basin.
- D. Permittee is authorized to divert and reuse the return flows resulting from the diversion and use of water from the Lower Bois d'Arc Creek Reservoir as authorized under this permit, subject to the Permittee's compliance with Special Condition 6.Y.

DIVERSION

- A. Permittee is authorized to divert the water authorized herein from any point on the perimeter of Lower Bois d'Arc Creek Reservoir.
- B. Permittee is authorized to divert the water authorized herein at a maximum combined diversion rate of 365.15 cfs (163,889 gpm).

TIME PRIORITY

The time priority for this right is June 26, 2007.

CONSERVATION

Permittee shall fully implement water conservation plans, developed in accordance with this provision, that provide for the utilization of those reasonably available practices, techniques, and technologies that reduce the consumption of water for municipal use on a gallons per-capita per day basis within NTMWD's service area and that, for each category of use authorized by this permit not including recreation use, prevent the waste of water, prevent or reduce the loss of water, improve the efficiency in the use of water, increase the recycling and reuse of water, and prevent the pollution of water, so that a water supply is made available for future or alternative uses. Permittee shall develop, submit and implement water conservation plans as required by law. Each water conservation plan submitted to the Executive Director shall be designed to comply with relevant state conservation standards then in effect, and, at the time of submission, shall be designed to achieve, for each category of authorized uses, the highest practicable levels of water conservation and efficiency achievable within the jurisdiction of the Permittee. Permittee shall report annually to the Executive Director on the implementation of its water conservation plans and shall make both its most current water conservation plan and the annual reports on the implementation of its conservation plans easily accessible to the public through electronic and other means.

Such plans shall ensure that every water supply contract entered into, on or after the effective date of this permit, including any contract extension or renewal, requires that each successive wholesale customer shall develop and implement conservation measures

that will result in the highest practicable levels of water conservation and efficiency in order to comply with TWC § 11.085 (l)(2), and that each wholesale customer will report, no less frequently than once every year, to Permittee on the implementation of those conservation measures. If Permittee enters into a water supply contract on or after the effective date of this permit that authorizes the resale of water, such contract shall require that each successive customer in the resale of the authorized water implement water conservation measures at least as stringent as those included in Permittee's approved water conservation plan.

6. SPECIAL CONDITIONS

- A. Permittee shall only impound and divert water authorized by this permit in accordance with the most recently approved North Texas Municipal Water District Reservoir Accounting Plan. Permittee shall maintain said plan in electronic format and make the data available to the Executive Director upon request. Any modifications to the North Texas Municipal Water District Reservoir Accounting Plan shall be approved by the Executive Director. Only modifications that would result in a change to a permit term must be in the form of an amendment to the permit. Should Permittee fail to maintain the accounting plan or timely notify the Executive Director of any modifications to the plan, Permittee shall immediately cease impoundments and diversions authorized in Paragraph 1. IMPOUNDMENT and Paragraph 2. USE, and either apply to amend the permit, or voluntarily forfeit the permit. Permittee shall provide prior notice to the Executive Director of any proposed modifications to the accounting plan and provide copies of the appropriate documents effectuating such changes.
- B. All mitigation plans and monitoring required herein shall comply with requirements set forth in 33 United States Code §1341, commonly known as the federal Clean Water Act (CWA), §401 and 30 TAC Chapter 279. Mitigation and monitoring plans shall also comply with the requirements in §404 of the CWA as implemented through the U.S. Army Corps of Engineers permit for the Lower Bois d'Arc Creek Reservoir.
- C. Impoundment of water and diversion under this permit is contingent upon the initiation of implementation of the approved *Mitigation Plan for the Proposed Lower Bois d'Arc Creek Reservoir*. Permittee's continued authorization of impoundment and diversion of water under this permit is contingent on timely completion of implementation in accordance with the terms of that plan. Modifications or changes to the plan must be approved by the Executive Director. Only modifications that would result in a change to a permit term must be in the form of an amendment to the permit.
- D. Permittee shall document compliance with the terms and conditions of this permit relating to environmental flow requirements, as set out in Special Conditions 6.E. through 6.R., in the most recently approved North Texas Municipal Water District Reservoir Accounting Plan.
- E. Permittee shall determine compliance with pulse flow conditions and subsistence period freshet conditions using measured flows at USGS Gage 07332622, Bois d'Arc Creek at FM 409 near Honey Grove, TX or, in the case of deliberate releases to pass qualifying pulse flow events or qualifying subsistence period freshets, measurements of the releases from the reservoir as documented in the most

- recently approved North Texas Municipal Water District Reservoir Accounting Plan.
- F. If calculated reservoir inflows, as determined in the most recently approved North Texas Municipal Water District Reservoir Accounting Plan, constitute a qualifying pulse flow event as defined in Special Condition 6.L., the pulse flow requirement for the season has not been met, and the flows at USGS gage 07332622 for the same time period do not exceed the pulse flow trigger requirement, the pulse shall be passed through the reservoir in a manner as close as practicable to the applicable seasonal release pattern identified in the most recently approved North Texas Municipal Water District Reservoir Accounting Plan. Permittee may release water to augment naturally occurring high flow events so that flows at the USGS Gage 07332622 meet or exceed the pulse flow trigger requirement, subject to the requirements of Special Condition 6.J.
- G. Consistent with Special Condition 6.F., when calculated reservoir inflows, as determined in the most recently approved *North Texas Municipal Water District Reservoir Accounting Plan*, equal or exceed the pulse flow trigger requirements of Special Condition 6.R. and the pulse flow requirement for the season has not been met, inflows to the reservoir in excess of applicable base flow requirements may be temporarily impounded. Consistent with Special Condition 6.F, if the calculated volume or duration criterion for an applicable qualifying pulse flow event, as specified in Special Condition 6.L., is met, Permittee shall promptly release the temporarily impounded water in a manner as close as practicable to the applicable seasonal release pattern identified in the most recently approved *North Texas Municipal Water District Reservoir Accounting Plan*.
- H. Permittee is not required to release stored water, except temporarily impounded water as described in Special Condition 6.G. or a qualifying subsistence period freshet required to be released pursuant to Special Condition 6.Q., to meet the environmental flow requirements in this permit. All requirements for pass-throughs of inflows or releases of temporarily impounded water pursuant to Special Conditions 6.E. through 6.R. are limited to the volume of calculated inflows to the reservoir.
- I. Subject to compliance with the subsistence and base flow requirements of Special Conditions 6.Q and 6.R, inflows may be stored if either: (i) the pulse flow requirement for a season has been met; or (ii) inflows to the reservoir are below the applicable pulse flow trigger; or (iii) inflows equal or exceed the applicable pulse flow trigger but the calculated volume and duration criteria for a qualifying pulse flow event are both not met. If Permittee has stored water, other than temporarily stored water pursuant to Special Condition 6.G. that is part of a qualifying pulse flow event or water that is part of a qualifying subsistence period freshet required to be passed pursuant to Special Condition 6.Q., then in accordance with the terms and conditions of this permit, including any applicable environmental flow requirements in effect at the time the water was stored, Permittee may divert and use that stored water, even if the applicable environmental flow requirement is not met at the time of the subsequent diversion and use of that stored water.
- J. If a naturally occurring qualifying pulse flow event is recorded at USGS gage 07332622, such pulse flow event shall satisfy a pulse flow requirement for that event within the respective season. In addition, a pulse flow requirement for an event within a season may be satisfied by a naturally occurring high flow event

which has been augmented by reservoir releases as authorized in Special Condition 6.F., but only if the applicable trigger, duration and volume criteria are all met as measured at that gage.

- K. Each season is independent of the preceding and subsequent seasons with respect to the pulse flow requirements of Special Condition 6.R.
- L. Except as otherwise provided in Special Condition 6.J., a pulse flow is considered to be a qualifying pulse flow event if the pulse flow trigger requirement is met and either the pulse flow volume or duration requirement is met, as specified in Special Condition 6.R.
- M. Permittee shall determine compliance with the requirement to pass reservoir inflows up to the applicable subsistence or base flow values of Special Condition 6.R. based on measured flows at the outlet works of the dam.
- N. Seasons are defined as Fall-Winter (November February), Spring (March June), and Summer (July October).
- O. Reservoir storage is the trigger for determining the applicable instream flow requirements in Special Conditions 6.E. through 6.R. Subsistence flow requirements apply when storage is less than 40% of the authorized conservation storage. Base flow and pulse flow requirements apply when conservation storage is equal to or greater than 40%.
- P. Pulse flow requirements are not applicable under subsistence flow conditions.
- Q. When subsistence flow requirements are in effect, as provided in Special Condition 6.O., inflows into the reservoir up to 1 cfs shall be passed downstream and a subsistence period freshet pass-through requirement shall be in effect.

A qualifying subsistence period freshet is characterized by a trigger flow of at least 20 cfs and either a volume of at least 69 acre-feet or a duration of at least three days. Volume will be determined based on cumulative flows occurring over a three-day period, beginning with the day during which the trigger flow occurs. Duration will be determined based on the number of days of inflow greater than 1 cfs, beginning with the day on which the trigger flow occurs. During the time that subsistence flow requirements are in effect pursuant to Special Condition 6.O., Permittee shall track flows at USGS gage 07332622, Bois d'Arc Creek at FM 409, and inflows to the reservoir, to determine if a qualifying subsistence period freshet has occurred at either location.

If, while subsistence flow requirements are in effect pursuant to Special Condition 6.O., a 60-day period occurs without a qualifying subsistence period freshet at USGS gage 07332622, Bois d'Arc Creek at FM 409, but, during which, a qualifying subsistence period freshet has occurred as reservoir inflow, the subsistence period freshet shall be promptly passed through the dam. If a qualifying subsistence period freshet has not occurred as reservoir inflow during such 60-day period, flows will continue to be monitored to determine when a qualifying subsistence period freshet occurs at the FM 409 gage or a qualifying subsistence period freshet has occurred as inflow to the reservoir. During that period of continued monitoring, a qualifying subsistence period freshet will be passed as soon as such an event occurs as inflow into the reservoir unless a qualifying subsistence period

freshet has occurred at the FM 409 gage.

As closely as practicable, the subsistence period freshet pass-through shall average 20 cfs the first day, 10 cfs the second day, and 5 cfs the third day. As long as subsistence flow requirements are in effect, once a qualifying subsistence period freshet has occurred at USGS gage 07332622, Bois d'Arc Creek at FM 409, or such flow has been passed through the dam, a new 60-day period will be started for the purpose of determining when a qualifying subsistence flow event must be passed through the dam. In passing an individual subsistence period freshet through the dam, Permittee shall never be required to pass a volume of more than 69 acre-feet.

R. Impoundment or diversion of reservoir inflows when flows are at or below the following values, at the applicable measurement points described in Special Conditions 6.E. and 6.M., is authorized only in compliance with Special Conditions 6.A. and 6.D. through 6.Q., above:

Season	Subsistence	Base	Pulse
Fall-Winter	1 cfs*	3 cfs	2 per season Trigger: 150 cfs Volume: 1,000 af Duration: 7 days
Spring	ı cfs*	10 cfs	2 per season Trigger: 500 cfs Volume: 3,540 af Duration: 10 days
Summer	1 cfs*	3 cfs	1 per season Trigger: 100 cfs Volume: 500 af Duration: 5 days

cfs = cubic feet per second

af = acre-feet

This special condition is subject to adjustment by the commission if the commission determines, through an expedited public review process, that such adjustment is appropriate to achieve compliance with applicable environmental flow standards adopted pursuant to Texas Water Code § 11.1471. Any adjustment shall be made in accordance with the provisions of Texas Water Code § 11.147(e-1).

S. Permittee shall implement measures to minimize impacts to aquatic resources due to entrainment or impingement including, but not limited to, the installation of screens at the diversion facilities. Such measures shall include intake diversion facilities designed and operated to result in a velocity of water into the diversion facility of no greater than 1 foot-per-second. At all times that diversions are occurring, the intake diversion facilities shall be equipped with screens resulting in individual openings no larger than 1 square inch in size.

^{*}A subsistence period freshet requirement with a trigger level of 20 cfs, a volume of 69 af, and a duration of 3 days, as further defined in Special Condition 6.Q., also applies.

- T. After commencing deliberate impoundment in the reservoir, Permittee shall conduct hydrologic and water quality monitoring in accordance with the approved North Texas Municipal Water District Monitoring Plan. Permittee shall submit a summary of hydrologic and water quality monitoring data to the Executive Director on an annual basis. Permittee shall submit to the Executive Director a summary report of hydrologic and water quality data in the fifth and tenth years following deliberate impoundment in the reservoir and every five years thereafter for as long as monitoring under Special Condition 6.U. continues. Hydrologic and water quality monitoring for all sites and parameters, other than daily flows at USGS Gage 07332622, Bois d'Arc Creek at FM 409 near Honey Grove, TX, and water quality monitoring associated with reservoir releases undertaken pursuant to Special Condition 6.W., may cease after ten years, or when instream monitoring specified in Special Condition 6.U. ceases, whichever is later.
- U. Permittee shall conduct instream monitoring of Bois d'Arc Creek at the FM 409 Site and, at a minimum, one additional site within the non-channelized portion of the Creek farther downstream, in the first, third, fifth and tenth years following deliberate impoundment of water in the reservoir. In addition, if diversions from the reservoir, as calculated on an annualized basis, have not reached 100,000 acrefeet prior to the fifth year following deliberate impoundment, instream monitoring shall continue every fifth year thereafter until instream monitoring has been undertaken during two years following the year that diversions reach 100,000 acrefeet per year. Instream monitoring during any year in which it is required shall include a twice per year assessment of fish and macroinvertebrate communities and physical habitat assessment at each site, plus a twice per year analysis of water quality data collected at the USGS Gage 07332622, Bois d'Arc Creek at FM 409 near Honey Grove, TX. All aquatic biological monitoring and physical habitat assessments shall take place in the index period (March 15 - October 15) with at least one of the twice per year monitoring events taking place in the critical period (July 1 – September 15). Aquatic biological monitoring and habitat characterization shall follow TCEQ protocols set forth in the most recently approved Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Community and Habitat Data.
- V. Permittee shall submit a report to the Executive Director summarizing the twice per year monitoring activities in Special Condition 6.U. within six months after the second monitoring event in any year is completed. The report shall detail all monitoring efforts and shall include an assessment of the fish and macroinvertebrate communities and the biological metric scoring criteria used to assess aquatic life uses. Should aquatic life use not meet the water quality standards for Segment 0202A or future segment designation, Permittee shall develop and implement remedial management strategies, subject to Executive Director approval, to meet the designated aquatic life use. Permittee shall also submit summary reports to the Executive Director no later than six months after the end of the fifth and tenth year monitoring events, and any subsequent year's monitoring events, that compare all monitoring data to baseline conditions.
- W. Permittee shall construct and operate a multilevel outlet tower and regulate releases to ensure that water released from the reservoir maintains DO and temperature levels that meet the surface water quality standards for Segment 0202A or future segment designation. Permittee shall monitor water quality near the outlet tower in accordance with the approved Monitoring Plan during the life of the permit.

- X. Permittee shall install and maintain measuring devices which account for, within 5% accuracy, the quantity of water diverted from the points authorized above in Paragraph 3. DIVERSION. Permittee shall allow representatives of the TCEQ reasonable access to the property to inspect the measuring device.
- Y. Prior to the diversion and reuse of the return flows authorized pursuant to Paragraph 2.D. USE, resulting from the diversion and use of water from the Lower Bois d'Arc Creek Reservoir as authorized under this permit, Permittee shall apply for and be granted an amendment to identify all specific points of discharge and diversion, and secure the appropriate authorizations to transfer such return flows through state watercourses pursuant to TWC §11.042, except to the extent such points of discharge, diversion, and transfer may be authorized by separate grant of authority from the Commission.

TIME LIMITATIONS

- A. Construction of the dam for Lower Bois d'Arc Creek Reservoir must be in accordance with plans approved by the Executive Director. Construction of the dam without final approval of the construction plans is a violation of this authorization.
- B. Construction shall begin within two years of issuance of this permit and be completed within seven years of the issuance of this permit, unless Permittee applies for and is subsequently granted an extension of time before the expiration of these time limitations.

This water use permit is issued subject to all superior and senior water rights in the Red River Basin.

This permit is issued subject to the obligations of the State of Texas pursuant to the terms of the Red River Compact.

Permittee agrees to be bound by the terms, conditions, and provisions contained herein and such agreement is a condition precedent to the granting of this permit.

All other matters requested in the application which are not specifically granted by this water use permit are denied.

This water use permit is issued subject to the Rules of the Texas Commission on Environmental Quality and to the right of continuing supervision of State resources exercised by the Commission.

For the Commission

ISSUED: June 26, 2015

NORTH TEXAS MUNICIPAL WATER DISTRICT

CITY OF BONHAM POTABLE WATER SUPPLY CONTRACT

THE STATE OF TEXAS

§

THE COUNTY OF COLLIN

8

THIS CONTRACT (the "Contract") made and entered into as of this the 2/st-day of December, 2004, by and between the North Texas Municipal Water District, hereinafter called "NTMWD", a conservation and reclamation district created under Article 16, Section 59, of the Texas Constitution, and the City of Bonham, hereinafter called "Customer".

WITNESSETH:

WHEREAS, NTMWD and Customer are authorized to enter into this Contract pursuant to NTMWD's Enabling Legislation, Chapter 791 of the Texas Government Code (the "Interlocal Cooperation Act"), Chapter 30, Texas Water Code, and other applicable laws; and,

WHEREAS, pursuant to Certificate of Adjudication No. 02-4925, Customer is authorized to divert and use not to exceed 5,340 acre-feet of water per annum for municipal purposes from Lake Bonham; and

WHEREAS, Customer owns and operates an existing water treatment plant and associated infrastructure (the "Existing Facilities"); and

WHEREAS, Customer desires to continue to utilize the Existing Facilities to provide for the current and short term water demands of Customer; and

WHEREAS, Customer desires to contract with NTMWD to provide for the long term water demands of Customer; and

WHEREAS, NTMWD plans to construct a new 6.0 million gallon per day ("MGD") water treatment plant located in Bonham, Texas ("the New Facilities") to be utilized as part of its system; and

WHEREAS, Customer has requested NTMWD supply potable water from the New Facilities proposed to be constructed; and

WHEREAS, NTMWD is willing to design and construct the New Facilities and to supply potable water to Customer upon the effective transfer, conveyance or assignment of Customer's water rights in Lake Bonham and other good and valuable consideration; and

WHEREAS, in consideration of the construction and ownership of the New Facilities by NTMWD upon the terms set forth herein and for other valuable consideration, Customer hereby finds and determines that Customer is willing to (i) convey land to NTMWD sufficient for the construction of the New Facilities, (ii) to assign the right to divert and use up to 5,340 acre-feet of water per annum for municipal purposes from Lake Bonham to NTMWD, and (iii) upon completion of construction of the New Facilities, transfer to NTMWD the Existing Diversion Works (as defined herein), all of which conveyances, assignments and transfers are to be necessary to meet Customer's potable water requirements to serve its water utility system; and it is further found and determined by Customer that all such conveyances, assignments and transfers are made in consideration of Customer obtaining interests in and rights in and to a water supply project for the benefit of Customer's water system, and therefore such conveyances, assignments and transfers do not constitute the sale of any part of Customer's water utility system for which Customer has need.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, NTMWD agrees to furnish water, and Customer agrees to pay for water, upon the terms and conditions and for the consideration hereinafter set forth, to wit:

Section 1. DEFINITION OF TERMS. The following terms and expressions as used in this Contract, unless the context clearly shows otherwise, shall have the following meanings:

- (a) "Annual Payment" means the amount of money to be paid to NTMWD by Customer during each Annual Payment period.
- (b) "Annual Payment Period" means NTMWD's fiscal year, which currently begins on October 1 of each calendar year and ends on September 30 of the next following calendar year, but which may be any twelve (12) consecutive month period fixed by NTMWD.
- (c) "Contract Date" means the effective date of this Contract as executed by both parties.
- (d) "Customer" means the City of Bonham, Texas, the Contracting Party.
- (e) "Existing Facilities" means the existing water treatment plant owned and operated by Customer, including all infrastructure utilized to deliver potable water to Customer's service area.
- (f) "Existing Diversion Works" means the existing intake pump station, valves, pipeline, structures and real property necessary to convey raw water from Lake Bonham to the Existing Facilities.
- (g) "New Facilities" means the new water treatment plant identified in the preamble, including all materials, equipment and real property necessary to own and operate said water treatment plant.

- (h) "NTMWD" means the North Texas Municipal Water District as defined in the preamble to this Contract.
- (i) "Member City or Cities" means the Cities of Allen, Farmersville, Forney, Frisco, Garland, McKinney, Mesquite, Plano, Princeton, Richardson, Rockwall, Royse City and Wylie together with any other party or parties which becomes a Member City.
- (j) "MGD" is an abbreviation for "million gallons of water per day" and means a quantity of water during a period of time expressed for convenience in terms of an average annual daily quantity during an Annual Payment Period.
- (k) "Regional Contract" means the "North Texas Municipal Water District Regional Water Supply Facilities Amendatory Contract" dated as of August 1, 1988 together with all similar contracts between NTMWD and contracting parties.
- (I) "System" means, collectively, the existing system and the future improvements and water of NTMWD included as part of the System under the Regional Contract for projects, water storage, treatment, transmission and supply, including all dams, reservoirs, and other properties or interests therein, wherever located. Said terms do not include any of NTMWD's facilities that provide wastewater treatment or disposal services, or solid waste disposal services, of any kind. Said terms do not include any facilities acquired or constructed by NTMWD with the proceeds from the issuance of "Special Facilities Bonds", which are payable from any source, contract, or revenues whatsoever, other than revenues from the System.
- (m) "Water Year" means the period of August 1 of each calendar year through July 31 of the next following calendar year or such other twelve (12) month period designated by NTMWD to all Member Cities and customers.

Section 2. QUANTITY. Following the transfer, conveyance or assignment of Customer's water rights to NTMWD pursuant to the provisions of Section 19 of this Contract, and the completion of construction of the New Facilities, NTMWD agrees to sell and to deliver up to 5,340 acre-feet per annum of potable water under this Contract to Customer, and Customer agrees to take water required for use by Customer during the term of this Contract, including potable water for Customer's own use and for distribution to customers served by Customer's water distribution system, or within the Customer's existing Texas Commission on Environmental Quality ("TCEQ") certificated service area. It is specifically provided, however, that after the Contract Date, unless required to do otherwise by the TCEQ or a court of competent jurisdiction, Customer shall not enter into, renew, or amend with regard to volume of water to be supplied, any agreement to provide wholesale or retail potable water for use outside its boundaries, its extraterritorial jurisdiction, or its certificated service area unless each such agreement is approved by the NTMWD (which approval shall not be unreasonably withheld unless the projected additional volume affects NTMWD's ability to provide service to others or conflicts with law or NTMWD policy). Customer shall not become a party to any contract for the sale of potable water, which would violate or be inconsistent with the provisions of this Contract. NTMWD agrees to furnish potable water to Customer in a quantity not to exceed the equivalent volume of water rights conveyed or assigned from Customer to NTMWD hereunder.

Consistent with the provisions of Section 19, in addition to the initial 5,340 acrefeet per annum of potable water to be supplied pursuant to this contract, NTMWD agrees to, where available and as needed, provide Customer with additional potable water from future water supplies to be developed by NTMWD.

Section 3. OTHER CONTRACTS. NTMWD reserves the right to supply potable water from the System to additional parties as determined by the Board of Directors of NTMWD.

Section 4. QUALITY. The water to be delivered by NTMWD and received by Customer shall be potable water. Customer has satisfied itself that such water will be suitable for its needs, but NTMWD is obligated to treat such water so as to meet the standards of all State and Federal agencies having jurisdiction over water quality. NTMWD and Customer shall cooperate, each within its legal powers, in preventing, to the extent practicable, the pollution and contamination of the reservoirs and watersheds from which water is obtained.

Section 5. POINT(S) OF DELIVERY. The Point of Delivery for Customer shall be at the New Facilities located at 2057 Farm to Market 273 in Bonham, Texas. Customer shall construct, maintain, and operate, at its own cost and expense, all facilities and equipment necessary to receive and take all potable water delivered to it under this Contract. All facilities and equipment must be inspected and approved by NTMWD and any construction from NTMWD's on site supply line through the air gap connection must meet NTMWD specifications.

Section 6. MEASURING EQUIPMENT. NTMWD shall furnish and install at the Point of Delivery the necessary measuring equipment of a standard type approved by NTMWD for measuring properly the quantity of potable water delivered under this Contract. Customer shall have access to such metering equipment at all reasonable times, but the reading, calibration, and adjustment thereof shall be done only by the employees or agents of NTMWD. For the purpose of this Contract, the original record or reading of the meter shall be the journal or other record book maintained by NTMWD in its office in which the records of the employees or agents of NTMWD who take the reading or may be transcribed. Upon written request of Customer, NTMWD will provide a copy of such journal or record book, or permit it to have access to the same in the office of NTMWD during reasonable business hours.

Not more than once in any six (6) month time period, NTMWD shall test its meter if requested in writing by Customer to do so, in the presence of a representative of Customer, and the parties shall jointly observe any adjustments which are made to the meter in case any adjustments shall be necessary, and if the check meter hereinafter provided for has been installed, the same shall also be calibrated by Customer in the presence of a representative of NTMWD and the parties shall jointly observe any adjustment if necessary. If Customer shall in writing request NTMWD to calibrate its meter, then NTMWD shall give Customer notice of the time when any such calibration is to be made and if a representative of Customer is not present at the time set, NTMWD may proceed with calibration and adjustment in the absence of any representative of Customer.

If either party at any time observes a variation between the delivery meter and the check meter or meters, if any such check meter or meters shall be installed, such party will promptly notify the other party, and the parties hereto shall then cooperate to procure an immediate calibration test and joint observation of any adjustment and the same meter or meters shall then be adjusted to accuracy. Each party shall give the other party forty-eight (48) hours notice of the time of all tests of meters so that the other party may conveniently have a representative present.

If upon any test, the percentage of inaccuracy of any metering equipment is found to be in excess of two percent (2%), registration thereof shall be corrected for a period extending back to the time when such inaccuracy began, if such time is ascertainable, and if such time is not ascertainable, then for a period extending back one-half (1/2) of the time elapsed since the last date of calibration, but in no event further back than a period of six (6) months. If for any reason any meters are out of repair so that the amount of water delivered cannot be ascertained or computed from the reading thereof, the water delivered through the period such meters are out of service or out of repair shall be estimated and agreed upon by the parties hereto upon the basis of the best data available. For such purpose, the best data available shall be deemed to be the registration of any check meter or meters if the same have been installed and are accurately registering. Otherwise, the amount of water delivered during such period may be estimated (i) by correcting the error if the percentage of the error is ascertainable by calibration tests or mathematical calculation, or (ii) estimating the quantity of delivery by deliveries during the preceding periods under similar conditions when the meter or meters were registering accurately.

Customer may, at its option and its own expense, install and operate a check meter to check each meter installed by NTMWD, the measurement of water for the purpose of this Contract shall be solely by NTMWD's meters, except in the cases hereinabove specifically provided to the contrary. All such check meters shall be of standard make and shall be subject at all reasonable times to inspection and examination by any employee or agent of NTMWD, but the reading, calibration and adjustment thereof shall be made only by Customer except during any period when a check meter may be used under the provisions hereof for measuring the amount of water delivered, in which case the reading, calibration, and adjustment thereof shall be made by NTMWD with like effect as if such check meter or meters had been furnished or installed by NTMWD.

Section 7. UNIT OF MEASUREMENT. The unit of measurement for potable water delivered under this Contract shall be 1,000 gallons of water, U.S. Standard Liquid Measure.

Section 8. PRICE AND TERMS. The service to be performed under this Contract by NTMWD consists of the readiness of NTMWD to deliver to Customer upon its demand, water in accordance with the conditions, limitations and provisions of this Contract. In return for such service Customer agrees to compensate NTMWD by payment of certain minimum annual sums of money, for each of which said sums NTMWD agrees, if required by Customer, to deliver all, or so much thereof as Customer may desire, of a certain corresponding volume of water, as follows:

- (a) For the First Annual Payment Period beginning with the next first day of October after the first delivery of water to Customer, Customer will take or pay for 640,000,000 gallons of water (1,753,425 gallons per day) at a rate of five cents (5¢) per 1,000 gallons above the rate established by NTMWD for the Member Cities. Any water delivered in excess of the amount allowed for the annual minimum will be purchased at a rate of five cents (5¢) per 1,000 gallons above the amount charged to Member Cities for excess water, however the excess water provision shall not apply until Customer has established an annual minimum of 670,000,000 gallons. The maximum rate of delivery shall not exceed the capabilities and abilities of NTMWD facilities. The minimum amount of water Customer will be required to purchase at the above rate, or such other rate, as may be from time to time determined by NTMWD, shall be calculated annually for each ensuing year and such amount shall be determined in the same manner as said amount is determined for the Member Cities. The annual minimum to be purchased during any ensuing year shall not be less than the highest total amount withdrawn by Customer during any previous year or 640,000,000 gallons, whichever is greater.
- (b) The quantities and rates set out in Section 2 and Section 8 hereof shall be reviewed at the end of the first full Annual Payment Period of service after the first delivery of water to Customer, and each year thereafter, and the minimum amount of water to be purchased, rate per 1,000 gallons and the maximum rate of delivery shall be re-determined by the Board of Directors of NTMWD at that time in the same manner as applied to NTMWD Member Cities.
- (c) Payment of the minimum annual service charge listed above shall be made each year by Customer to NTMWD in twelve (12) equal monthly installments, each of which shall be due and payable on or before the 10th day of the month following the service.
- (d) It is further agreed that, in addition to the amounts required to be paid by Customer herein, if during any Water Year Customer uses System treated water in excess of the minimum amount established pursuant to the excess water provision set forth in Section 8.(a) for the Annual Payment Period which commenced during such Water Year, then Customer shall pay an "Excess Water Charge" equal to that part of the operation and maintenance expenses (e.g. electric power, chemicals, and other similar costs) directly attributable to supplying such excess treated water to Customer, all as determined by NTMWD. Such Excess Water Charge shall be billed by NTMWD to Customer as soon as practicable after the end of such Water Year and shall be paid to NTMWD as soon as practicable thereafter, and in all events prior to the beginning of the next Annual Payment Period. Such Excess Water Charges shall be credited to and be used for paying part of the operation and maintenance expenses for the then current Annual Payment Period and reduce to the extent of such credits the amounts which otherwise would be payable by Customer during such then current Annual Payment Period.
- (e) Liability for making payments, as herein set forth, shall commence upon completion of construction of the New Facilities, and upon the ability of NTMWD to provide potable water to Customer.
- (f) In the event that Customer shall fail to make any such monthly payment or annual payment within the time herein in this section specified, interest on such amount shall accrue at the rate of ten percent (10%) per annum from the date such payment

becomes due until paid in full with the interest as herein specified. In the event such payment is not made within thirty (30) days from the date such payment becomes due, NTMWD may at its option discontinue delivery of water to Customer until the amount due NTMWD is paid in full with interest as herein specified.

Section 9. TERM OF CONTRACT. Except as provided in Section 19, this Contract shall continue in force and effect for a period of thirty (30) years from the date of this Contract.

Section 10. MODIFICATION. This Contract may be changed or modified only by written agreement of the parties and only after having obtained approval from the governing bodies of both NTMWD and Customer. No change or modification shall be made to this Contract which will affect adversely the prompt payment when due of all moneys required to be paid by Customer under the terms of this Contract.

Section 11. FORCE MAJEURE. If by reason of force majeure any party hereto shall be rendered unable wholly or in part to carry out its obligations under this Contract, other than the obligation of Customer to make the payments required under Section 8 of this Contract, then if such party shall give notice and full particulars of such force majeure in writing to the other party within a reasonable time after occurrence of the event or cause relied on, the obligation of the party giving such notice, so far as it is affected by such force majeure, shall be suspended during the continuance of the inability then claimed, but for no longer period, and any such party shall endeavor to remove or overcome such inability with all reasonable dispatch. The term "Force Majeure" as employed herein shall mean acts of God, strikes, lockouts, or other industrial disturbances, acts of public enemy, orders of any kind of the Government of the United States or the State of Texas, or any civil or military authority, insurrection, riots, epidemics, landslides, lightning, earthquake, fires, hurricanes, storms, floods, washouts, droughts, arrests, restraint of government and people, civil disturbances, explosions, breakage or accidents to machinery, pipelines or canals, partial or entire failure of water supply, or on account of any other causes not reasonably within the control of the party claiming such inability.

Section 12. INSURANCE. NTMWD agrees to carry and arrange for fire, casualty, public liability, and/or other insurance, including self insurance for purposes and in amounts which, as determined by NTMWD, ordinarily would be carried by a privately owned utility company owning and operating such facilities, except that NTMWD shall not be required to provide liability insurance except to insure itself against risk of loss due to claims for which it can, in the opinion of NTMWD's legal counsel, be liable under the Texas Tort Claims Act or any similar law or judicial decision. Such insurance will provide, to the extent feasible and practicable, for the restoration of damaged or destroyed properties and equipment, to minimize the interruption of the services of such facilities. All premiums for such insurance shall constitute just and reasonable operation and maintenance expenses. The insurance coverage does not extend to any facility owned by Customer.

Section 13. REGULATORY BODIES AND LAWS. This Contract is subject to all applicable Federal and State Laws and any applicable permits, ordinances, rules, orders, and regulations of any local, state or federal governmental authority having or asserting jurisdiction, but nothing contained herein shall be construed as a waiver of any

right to question or contest any such law, ordinance, order, rule, or regulation in any forum, having jurisdiction.

Section 14. NOTICES. Unless otherwise provided herein, any notice, communication, request, reply, or advice (herein severally and collectively, for convenience, called "Notice" herein provided or permitted to be given, made, or accepted by any party to any other party must be in writing and may be given or be served by depositing the same in the United States mail postpaid and registered or certified and addressed to the party to be notified, with return receipt requested, or by delivering the same to an officer of such party, or by prepaid telegram when appropriate, addressed to the party to be notified. Notice deposited in the mail in the manner hereinabove described shall be conclusively deemed to be effective, unless otherwise stated herein, from and after the expiration of three (3) days after it is so deposited. Notice given in any other manner shall be effective only if and when received by the party to be notified. For the purposes of notice, the addresses of the parties shall, until changed as hereinafter provided, be as follows:

If to NTMWD, to:

Executive Director North Texas Municipal Water District P.O. Box 2408 Wylie, Texas 75098

If to Customer, as follows:

City Manager City of Bonham 301 E. 5th Street Bonham, Texas 75418

The parties hereto shall have the right from time to time and at any time to change their respective addresses and each shall have the right to specify as its address any other address by at least fifteen (15) days written notice to the other parties hereto.

Section 15. SEVERABILITY. The parties hereto specifically agree that in case any one or more of the sections, subsections, provisions, clauses, or words of this Contract or the application of such sections, subsections, provisions, clauses, or words to any situation or circumstance should be, or should be held to be, for any reason, invalid or unconstitutional, under the laws or constitutions of the State of Texas or the United States of America, or in contravention of any such laws or constitutions, such invalidity, unconstitutionality, or contravention shall not affect any other sections, subsections, provisions, clauses, or words of this Contract or the application of such sections, subsections, provisions, clauses, or words to any other situation or circumstance, and it is intended that this Contract shall be severable and shall be construed and applied as if any such invalid or unconstitutional section, subsection, provision, clause, or word had not been included herein, and the rights and obligations of the parties hereto shall be construed and remain in force accordingly.

Section 16. VENUE. All amounts due under this Contract including, but not limited to, payments due under this Contract or damages for the breach of this Contract, shall be paid and be due in Collin County, Texas, which is the County in which the principal administrative offices of NTMWD are located. It is specifically agreed among the parties to this Contract that Collin County, Texas, is a principal place of performance of this Contract.

Section 17. OTHER CONDITIONS AND PROVISIONS.

- (a) Operation and Maintenance of System. NTMWD will continuously operate and maintain the System in an efficient manner and in accordance with good business and engineering practices, and at reasonable cost and expense.
- (b) <u>Title to Water: Indemnification</u>. Title to all water supplied to the Contracting Party shall be in NTMWD up to the Point of Delivery, at which point title shall pass to Customer. NTMWD and Customer shall save and hold each other harmless from all claims, demands, and causes of action, which may be asserted by anyone on account of the transportation and delivery of said water while title remains in such party. As between the parties, Customer shall have the first right to use all effluent produced from its wastewater treatment plant for reuse solely for its own purposes. To the extent that effluent produced by Customer is discharged to watercourses of the State, the right of Customer to reuse such effluent produced from its wastewater treatment plant is terminated, and NTMWD shall have the right as between the parties, and pursuant to any necessary authorization of the State, to appropriate and reuse such discharged effluent.
- (c) Operating Expenses of Customer. Customer represents and covenants that all payments to be made by it under this Contract shall constitute reasonable and necessary "operating expenses" of its water supply system, and that all such payments will be made from the revenues of its system. Customer represents and has determined that the potable water supply to be obtained is absolutely necessary and essential to the present and future operation of its water system and is the only available and adequate source of supply of potable water. Accordingly, all payments required by this Contract to be made by Customer shall constitute reasonable and necessary operating expense of its respective system as described above, with the effect that the obligation to make such payments from revenues of such systems shall have priority over any obligation to make any payments from such revenues (whether of principal, interest, or otherwise) with respect to all bonds or other obligations heretofore or hereafter issued by Customer.
- (d) <u>Customer's Rate for Waterworks System</u>. Customer agrees throughout the term of this Contract to continuously operate and maintain its waterworks system, and to fix and collect such rates and charges for water services to be supplied by its waterworks system as aforesaid as will produce revenues in an amount equal to at least (i) all of its payments under this Contract and (ii) all other amounts required to be paid from said revenues by the provisions of the ordinances or resolutions authorizing its revenue bonds or other obligations now or hereafter outstanding and file appropriate financial reports related to the Customer's system including annual audits.

Section 18. WATER CONSERVATION. Customer agrees to adopt and enforce any and all ordinances generally related to water conservation as may be required by the rules of the TCEQ and/or as may be adopted or recommended by the Board of Directors of NTMWD.

Section 19. SPECIAL CONDITIONS. NTMWD acknowledges that, pursuant to Certificate of Adjudication 02-4925, Customer is authorized to divert and use 5,340 acrefeet of water per annum from Lake Bonham for municipal purposes. Customer acknowledges that NTMWD was created for the purpose of developing water supplies and for the treatment, processing, and transportation of such water supplies to its Member Cities and other customers. NTMWD and Customer both desire that NTMWD develop a reservoir on Lower Bois D'Arc Creek (the "Reservoir") to meet the future water supply needs of NTMWD and Customer. To that extent, NTMWD and Customer desire to develop a long-term relationship for both the development of the Reservoir for NTMWD's future raw water needs, and to meet the immediate potable water needs of Customer. In this regard, the parties agree to the following:

- (a) Upon declaration by NTMWD that the New Facilities are completed and operational, Customer agrees to assign the right to divert and use up to 5,340 acre-feet of water per annum for municipal purposes from Lake Bonham to NTMWD. Customer agrees to retain ownership of the impoundment that is Lake Bonham and the Lake Bonham dam, including all reporting, inspection, repair, rehabilitation, and maintenance obligations necessary to comply with any requirement of law or Certificate of Adjudication No. 02-4925. Customer agrees to support any application required of NTMWD to the Texas Commission on Environmental Quality for the assignment of the rights to divert and use the water supplies contemplated herein, and to execute documents as required to effectuate such assignment.
- (b) Customer agrees to adopt and implement a watershed protection program (the "Program") to protect water quality within the watershed of Lake Bonham that is within Customer's territorial and extraterritorial jurisdiction. At a minimum, the Program should include authority to enforce development practices, including the placement, design, and operation of septic systems. Customer agrees to work in conjunction with NTMWD to develop the Program.
- (c) Customer agrees to retain ownership, including responsibility for operation, maintenance, compliance, and all debt service obligations, for the Existing Facilities. NTMWD shall never assume ownership, operation of, or liability for the Existing Facilities.
- (d) Upon completion of construction of the New Facilities, Customer agrees to transfer ownership and operation of the Existing Diversion Works to NTMWD. Customer shall retain responsibility for any existing debt service obligation for the Existing Diversion Works.
- (e) NTMWD agrees to plan, design, construct and finance the New Facilities and improvements to the Existing Diversion Works. Further, upon the completion of construction of the New Facilities, NTMWD accepts all responsibility associated with operation and maintenance of the New Facilities, Existing Diversion Works and improvements to Existing Diversion Works. NTMWD also commits to use proven technology to comply with all rules regarding taste and odor for potable water.

- (f) Customer agrees to convey to NTMWD, in fee simple, up to approximately twenty-five (25) acres of land necessary to construct, expand and operate the New Facilities including the Existing Diversion Works. Additionally, Customer agrees to provide all real property and easements, as needed, to convey water from Lake Bonham to the New Facilities and from the New Facilities to Customer's potable water distribution system.
- (g) Customer acknowledges that the water rights to be conveyed hereunder, the New Facilities, the Existing Diversion Works, and the improvements to the Existing Diversion Works will all become part of the System and, subject to the provisions of (I) below, shall be owned by NTMWD.
- (h) Customer's employees at the existing water treatment plant that meet the employment requirements of NTMWD Policy No. 4 will have the opportunity to become employees of NTMWD once the New Facilities are constructed and operational.
- (i) NTMWD agrees to provide Customer exclusively with treated water from the New Facilities in an amount up to the initial capacity of the New Facilities or the diversion authorized pursuant to Certificate of Adjudication No. 02-4925, whichever amount is less. Customer agrees that any further expansions to the New Facilities or the Customer's existing water treatment plant could be used to meet the potable water needs of additional NTMWD Member Cities or customers, including Customer.
- (j) NTMWD agrees to provide Customer with potable water at the Point of Delivery specified in this Contract. Customer agrees to retain responsibility for operations, maintenance, and funding, including existing debt service obligations, for the Existing Facilities and all portions of its retail treated water delivery system. Additionally, Customer agrees that any compliance issues associated with Public Water System Identification No. 0740001 as issued by the TCEQ shall remain the responsibility of Customer.
- (k) NTMWD intends to file an application with TCEQ to authorize the storage, diversion and use of water from the Reservoir. Customer agrees to support all local, state, and federal permitting and funding efforts of NTMWD in this regard.
- (I) If a surface water use permit for the Reservoir is not obtained prior to June 1, 2015, or if the project for construction of the Reservoir is determined by NTMWD in its sole discretion to be infeasible, or if any state or federal permits required for the construction or operation of the Reservoir are denied, the parties acknowledge that at the option of NTMWD this Contract shall terminate and Customer agrees to assume all responsibility, including ownership, maintenance, and compliance, for the New Facilities. This date may be modified by mutual written agreement of the parties. Should this Contract be terminated as provided in this Section 19(I), NTMWD agrees, in consideration of all prior payments by Customer hereunder, to assign to Customer any water rights it has obtained from Customer as described in Section 19 (a) and to transfer to Customer ownership and operation of the New Facilities, the Existing Diversion Works and the improvements to the Existing Diversion Works. Further, NTMWD agrees that should any TCEQ compliance issues be issued while NTMWD operates the New Facilities, Existing Diversion Works or improvements to Existing Diversion Works, such compliance issues shall remain the responsibility of NTMWD.

(m) On October 1 following issuance of the associated state surface water use permit for the Reservoir, Customer will be charged the prevailing Member City rate in effect at the time, and in lieu of the rate specified in Section 8 of this Contract.

IN WITNESS WHEREOF, the parties hereto acting under authority of their respective governing bodies have caused this Contract to be duly executed in several counterparts, each of which shall constitute an original, all as of the day and year first above written, which is the date of this Contract.

NORTH TEXAS MUNICIPAL WATER DISTRICT

By: for flerover

ATTEST:

Ken Bell, Secretary

(SEAL)

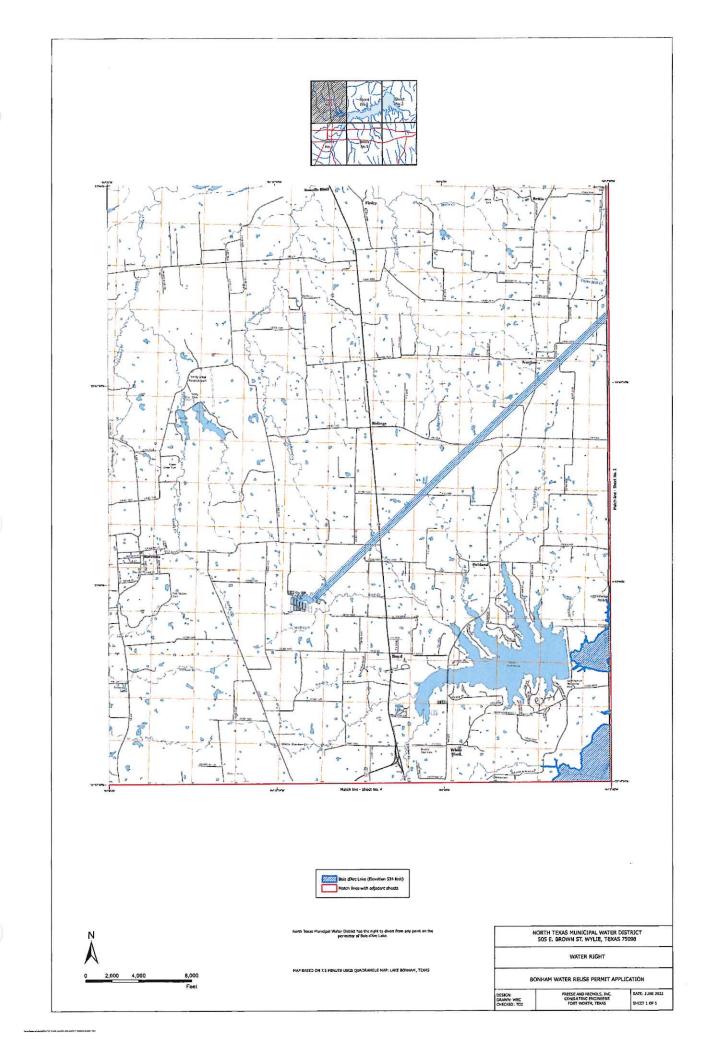
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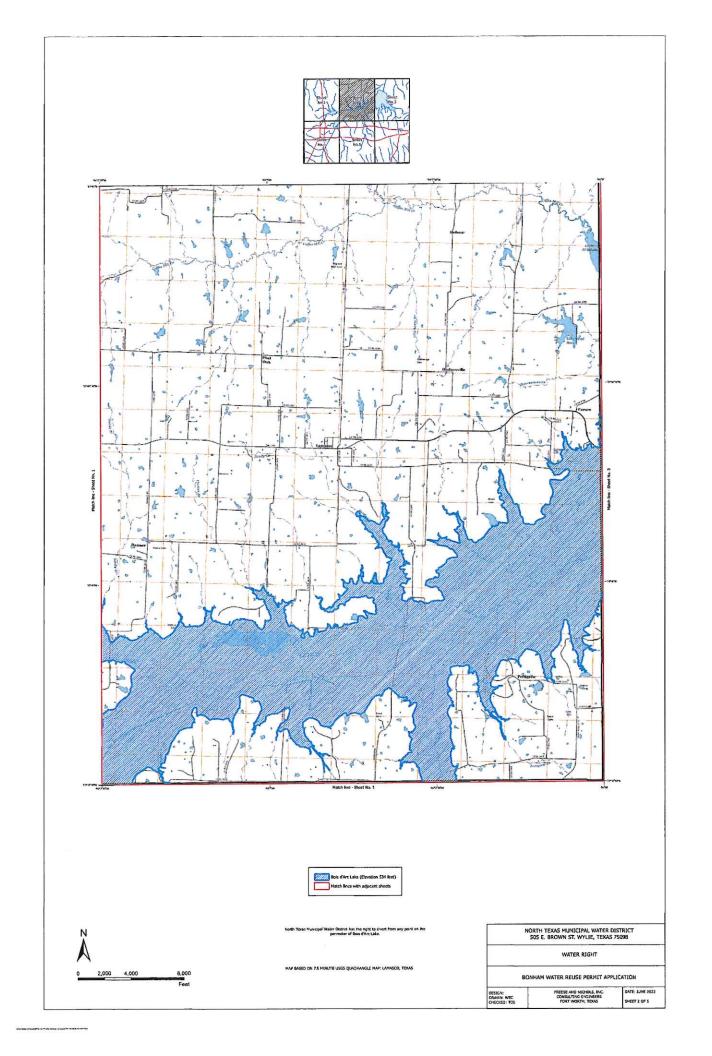
Carl McEachern May

ATTEST:

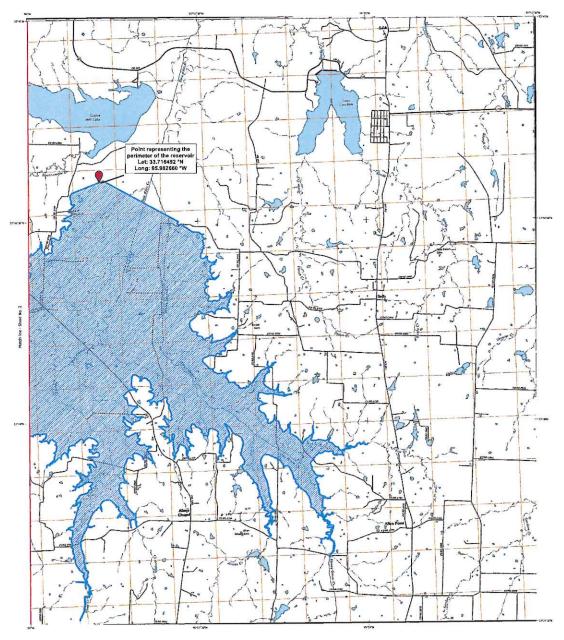
Janell Cain, Secretary

(SEAL)









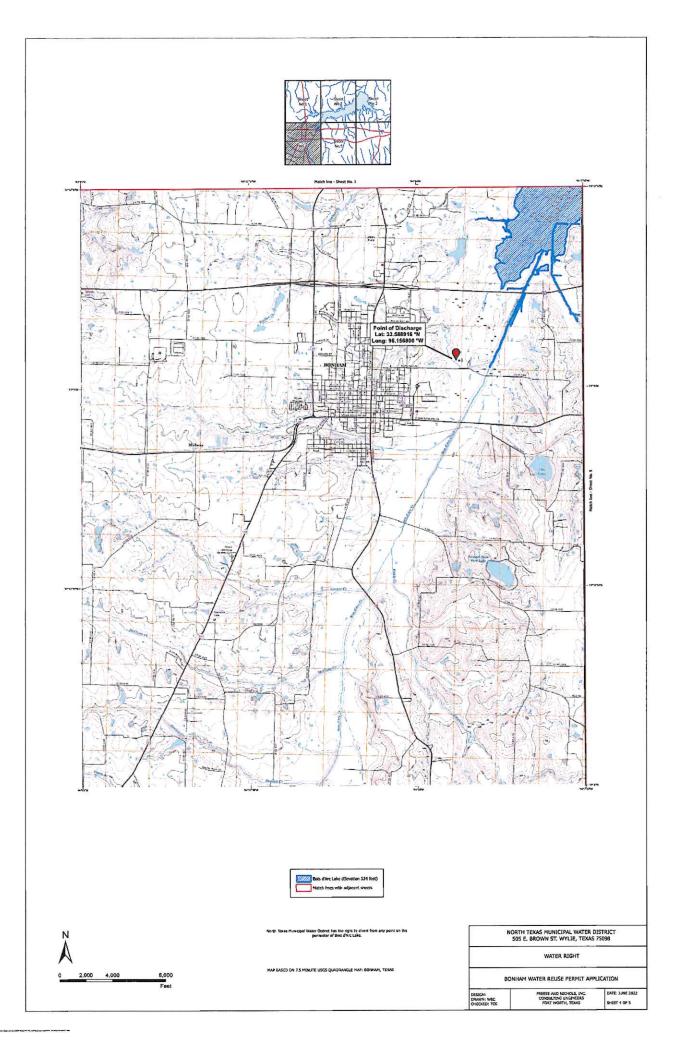


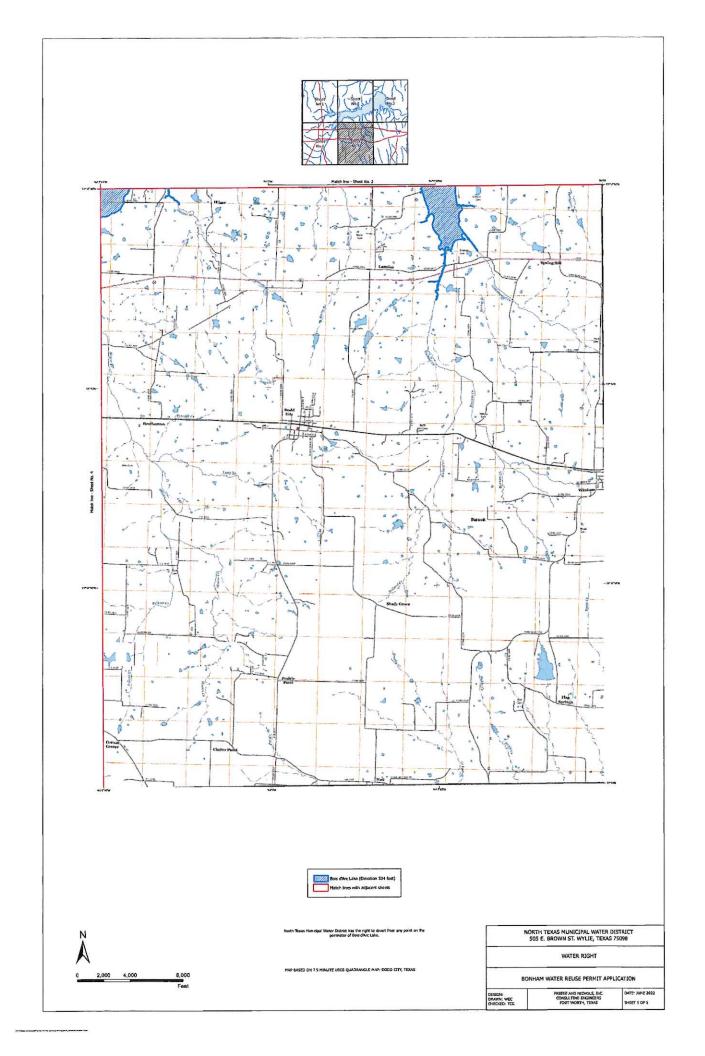
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North Texas Municipal Water Detrict has the right to divert from any joint on the perimeter of Bols d'Arc Lake.

MAP BASED ON 7.5 MINUTE USGS QUADRANGLE MAP: SELFS, TEXAS

	TH TEXAS MUNICIPAL WATER D S E. BROWN ST. WYLIE, TEXAS	
	WATER RIGHT	
BONI	AM WATER REUSE PERMIT APP	LICATION
DESIGN: DRAWN: WEC CHECKED: TEG	FREESE AND NICHOLS, INC. CONSULTING ENGINEERS FORT WORTH, TOXAS	DATE: JUNE 2022 SHEET 3 OF S





NORTH TEXAS MUNICIPAL WATER DISTRICT

RESOLUTION NO. 22-31

A RESOLUTION AUTHORIZING THE FILING OF WATER USE PERMIT APPLICATIONS

WHEREAS, the North Texas Municipal Water District (the "District") provides wholesale treated water to member cities and customers in its service area covering all or parts of Collin, Dallas, Denton, Fannin, Grayson, Hopkins, Hunt, Kaufman, Rains, Rockwall and Van Zandt Counties in North Central Texas; and

WHEREAS, the District is also a regional wholesale wastewater provider that owns and operates a regional wastewater system throughout portions of Collin, Dallas, Kaufman, and Rockwall Counties;

WHEREAS, the District has a statutory obligation to plan and secure adequate water supplies for existing and future member cities and customers; and

WHEREAS, due to sustained growth by the existing and future member cities and customers of the District the development of additional water supplies is necessary; and

WHEREAS, the District operates the Sabine Creek Wastewater Treatment Plant (the "Sabine Creek WWTP"); and

WHEREAS, the Sabine Creek WWTP is currently permitted to discharge up to 5 million gallons per day ("MGD") of wastewater return flows with a pending wastewater discharge major amendment permit application to increase to 7 MGD (the "Sabine Creek Return Flows"); and

WHEREAS, reuse of wastewater return flows is a recommended water management strategy for the District in the 2021 Region C Water Plan; and

WHEREAS, the District seeks to reuse Sabine Creek Return Flows to address the existing and future water demands of its current and future member cities and customers; and

WHEREAS, the District proposes to file an application with the Texas Commission on Environmental Quality (the "Commission") to seek the right to convey Sabine Creek Return Flows for subsequent diversion and use from Lake Tawakoni (the "Sabine Creek Reuse Application"); and

WHEREAS, the District supplies water to the City of Bonham that is subsequently treated at the City of Bonham Wastewater Treatment Plant (the "Bonham WWTP"); and

WHEREAS, the Bonham WWTP is permitted to discharge up to 2.5 MGD of wastewater return flows (the "Bonham Return Flows"); and

WHEREAS, pursuant to its water supply contract with the City of Bonham, the District retains the rights to indirectly reuse the Bonham Return Flows; and

WHEREAS, pursuant to that certain Settlement Agreement between North Texas Municipal Water District, National Wildlife Federation and Lone Star Chapter of the Sierra Club

dated August 28, 2014, the District agreed to file one or more water right applications with the Commission to dedicate Bonham Return Flows to the environment; and

WHEREAS, the District proposes to file an application with the Commission to seek the right to convey Bonham Return Flows for subsequent diversion and use from Bois d'Arc Lake (the "Bonham Reuse Application") for the purpose of ultimately dedicating Bonham Return Flows to the environment consistent with the Settlement Agreement; and

WHEREAS, 30 Texas Administrative Code § 295.14 requires that an application for a water right be executed by a duly authorized official of the District.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE NORTH TEXAS MUNICIPAL WATER DISTRICT, THAT:

- 1. The Executive Director of the District is hereby authorized on behalf of the Board of Directors to execute the Sabine Creek Reuse Application and any other documents as are necessary to secure authorization for the conveyance, diversion and use of Sabine Creek Return Flows from Lake Tawakoni to afford additional water supplies for the District's use in addressing the needs of its current and future member cities and customers.
- 2. The Executive Director of the District is hereby authorized and directed on behalf of the Board of Directors to file the Sabine Creek Reuse Application and to appear and arrange for the appearances of persons representing the District at the hearings and other proceedings on the Sabine Creek Reuse Application before the Commission, and otherwise direct the prosecution, settlement, and compromise of the Application on behalf of the Board of Directors, as appropriate.
- 3. The Executive Director of the District is hereby authorized on behalf of the Board of Directors to execute the Bonham Reuse Application and any other documents as are necessary to secure authorization for the conveyance, diversion and use of Bonham Return Flows from Bois d'Arc Lake for the purpose of ultimately dedicating Bonham Return Flows to the environment consistent with the Settlement Agreement between North Texas Municipal Water District, National Wildlife Federation and Lone Star Chapter of the Sierra Club.
- 4. The Executive Director of the District is hereby authorized and directed on behalf of the Board of Directors to file the Bonham Reuse Application and to appear and arrange for the appearances of persons representing the District at the hearings and other proceedings on the Bonham Reuse Application before the Commission, and otherwise direct the prosecution, settlement, and compromise of the Application on behalf of the Board of Directors, as appropriate.

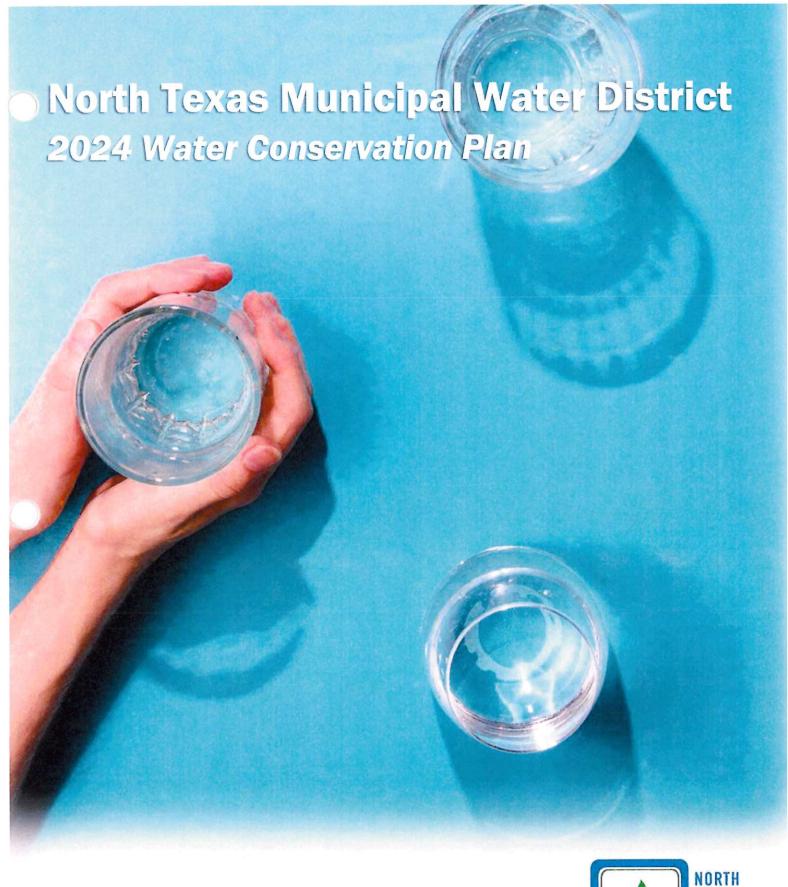
THIS RESOLUTION ADOPTED BY THE NTMWD BOARD OF DIRECTORS IN A REGULAR MEETING ON JULY 28, 2022 IN THE ADMINISTRATIVE OFFICES OF THE DISTRICT, WYLIE,

TEXAS.

MP. Secretar

JACK MAY, President

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2024 WATER CONSERVATION PLAN

Prepared for:

NORTH TEXAS MUNICIPAL WATER DISTRICT

ABIGAIL G. GARDNER

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02/29/2024
FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

Prepared by:

FREESE AND NICHOLS, INC.

801 Cherry Street, Suite 2800 Fort Worth, Texas 76102 817-735-7300

NTD22473



FOREWORD

The North Texas Municipal Water District (NTMWD or the District) developed the following water conservation plan with assistance from Freese and Nichols, Inc. (FNI). This Plan is prepared pursuant to Texas Commission on Environmental Quality (TCEQ) rules. This updated water conservation plan is a replacement for the most recent District water conservation plan dated January 2019.

Questions regarding the 2024 Water Conservation Plan should be addressed to the following:

Abbie Gardner
Freese and Nichols, Inc.

(817) 735-7527

Galen Roberts North Texas Municipal Water District (972) 442-5405

This 2024 Water Conservation Plan is based on the Texas Administrative Code included in Appendix B. In 2007, the Texas Legislature created the Water Conservation Advisory Council (WCAC), a council with expertise in water conservation representing various interests, and charged it to regularly review existing Best Management Practices (BMPs) and add new BMPs as appropriate. WCAC's recommendations have been included in guidance materials published and made publicly available by the Texas Water Development Board (TWDB). In 2021, a collaborative effort between the District and other North Texas water providers (Dallas Water Utilities, Tarrant Regional Water District, and Upper Trinity Regional Water District) published BMPs specifically for North Texas water conservation programs. These recommendations for BMPs have been reviewed and considered in the preparation of this Plan.



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Figure 12: NTMWD 2019 WCP Total 5-Year Average Per Capita and Per Capita Goals	



DEFINITIONS

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 and league play sanctioned by the utility providing retail water supply.

BEST MANAGEMENT PRACTICES (BMPs) are voluntary efficiency measures that save a quantifiable amount of water, either directly or indirectly, and that can be implemented within a specific time frame.

CONSERVATION includes 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 water supply is made available for future or alternative uses.

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, but are not limited to, perennial and annual rye grass, Kentucky blue grass and fescues.

CUSTOMERS include those entities to whom NTMWD provides wholesale water that are not member cities of NTMWD.

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.

EVAPOTRANSPIRATION (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 humidity.

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 evapotranspiration.

IRRIGATION SYSTEM means a permanently installed, custom-made, site-specific system of delivering water generally for landscape irrigation via a system of pipes or other conduits installed below ground.

LANDSCAPE means any plant material on a property, including any tree, shrub, vine, herb, flower, succulent, ground cover, grass or turf species, that is growing or has been planted out of doors.

MEMBER CITIES include the cities of Allen, Farmersville, Forney, Frisco, Garland, McKinney, Mesquite, Plano, Princeton, Richardson, Rockwall, Royse City, and Wylie, Texas, which are members of NTMWD.



MUNICIPAL USE means the use of potable water provided by a public water supplier as well as the use of treated wastewater effluent for residential, commercial, industrial, agricultural, institutional, and wholesale uses.

POND is a still body of water with a surface area of 500 square feet or more. This does not include recreational swimming pools.

PUBLIC WATER SUPPLIER is an individual or entity that supplies water to the public for human consumption.

REGIONAL WATER PLANNING GROUP is a group established by the Texas Water Development Board to prepare a regional water plan under Texas Water Code §16.053.

REGULATED IRRIGATION PROPERTY means any property of a designated customer class (i.e., commercial) that uses one million gallons of water or more for irrigation purposes in a single calendar year or is greater than one acre in size.

RESIDENTIAL GALLONS PER CAPITA PER DAY (RESIDENTIAL GPCD) means the total gallons sold for retail residential use by a public water supplier divided by the residential population served and then divided by the number of days in the year.

REUSE is the authorized use for one or more beneficial purposes of use of water that remains unconsumed after the water is used for the original purpose of use and before that water is either disposed of or discharged or otherwise allowed to flow into a watercourse, lake, or other body of state-owned water.

SPRINKLER/SPRAY IRRIGATION is the method of applying water in a controlled manner that is similar to rainfall. The water is distributed through a network that may consist of pumps, valves, pipes, and sprinklers.

RECREATIONAL/SWIMMING POOL is defined as a body of water that involves contact recreation. This includes activities that are presumed to involve a significant risk of ingestion of water (e.g. wading by children, swimming, water skiing, diving, tubing, surfing, etc.)

TOTAL GALLONS PER CAPITA PER DAY (TOTAL GPCD) means the total amount of water diverted and/or pumped for potable use less wholesale sales divided by the total permanent population divided by the days of the year. Diversion volumes of reuse as defined in TAC §288.1 shall be credited against total diversion volumes for the purposes of calculating GPCD for targets and goals.

WATER CONSERVATION COORDINATOR is the person designated by a retail public water supplier that is responsible for implementing a water conservation plan.

WATER CONSERVATION PLAN means the Member City or Customer water conservation plan approved and adopted by the utility.



ABBREVIATIONS

Ac-Ft/Yr	Acre-Feet per Year
BMP	Best Management Practices
CDC	Centers for Disease Control and Prevention
DWU	Dallas Water Utilities
E&O	Education and Outreach
EPA	Environmental Protection Agency
ET	Evapotranspiration
FNI	Freese and Nichols, Inc.
gpf	
gpm	Gallons per Minute
LAMP	Linear Asset Management Plan
LRWSP	Long Range Water Supply Plan
FWSD	Fresh Water Supply District
GPCD	Gallons per Capita per Day
ICIM	Industrial, Commercial, Institutional and Multifamily
MGD	Million Gallons per Day
MUD	Municipal Utility District
NCTCOG	North Central Texas Council of Governments
NTMWD	North Texas Municipal Water District
SUD	Special Utility District
TCEQ	Texas Commission on Environmental Quality
	Tarrant Regional Water District
	Texas Water Development Board
UTRWD	Upper Trinity Regional Water District
	Utility District
	Water Conservation Advisory Council
WCP	Water Conservation Plan
WSC	Water Supply Corporation
WENNT	Water Efficiency Network of North Texas
	Water Resource Recovery Facility
WTP	Water Treatment Plant
M/M/TP	Wastewater Treatment Plant



1.00 INTRODUCTION

NTMWD has been providing reliable wholesale water supply service to the North Texas region since 1956. The population the District serves has grown from about 32,000 in 1956 to over 2,000,000 people today, and NTMWD's system has grown in size and complexity to provide a continuous and reliable water supply. NTMWD's water supplies support public health and welfare and are key to the local economy and the prosperity of the region. NTMWD is committed to its vision of regional service through unity and providing for the region's needs today and tomorrow.

NTMWD is committed to good stewardship of our natural resources. NTMWD has been a leader in water conservation efforts and will continue to aggressively pursue conservation in the future. Since the District's conservation efforts began in earnest, over 20 years ago, NTMWD has won several awards. Furthermore, through the water permitting process for Bois d'Arc Lake, NTMWD proved its achievement of the highest practicable levels of conservation, a requirement for any inter-basin transfer permit from TCEQ. NTMWD's water conservation efforts will not end with its past success. NTMWD understands the importance of conservation and the leadership role the District plays and will continue to play in the region. NTMWD is continuing its commitment to water conservation through the development of this water conservation plan, participation with regional partners in media messaging and education, providing conservation resources for its Member Cities and Customers, and many other activities supported by more than a million dollars in annual funding for conservation related activities. Through these efforts, NTMWD intends to continue to work towards its conservation goals.

NTMWD recognizes that to achieve its goals of maximizing water conservation and efficiency, it is necessary to develop and implement a water conservation plan that goes beyond basic compliance with TCEQ guidelines and requirements (**Appendix B**). In 2007, the Texas Legislature created the Water Conservation Advisory Council (WCAC), which was given several charges, one of which is monitoring new technologies for possible inclusion in the best management practice guide. The Water Conservation Implementation Task Force developed the TWDB Report 362 Water Conservation Best Management Practices Guide in partial fulfillment of the Texas Legislature's charge to TCEQ and TWDB to develop recommendations for optimum levels of water use efficiency and conservation in the state. The WCAC regularly reviews, updates, and creates new best management practices through a collaborative process. As best management practices are developed, they are published online at https://www.twdb.texas.gov. Those BMPs were incorporated, where practicable, in the development of this Plan.

In 2021, a collaborative effort between the District and other North Texas water providers (Dallas Water Utilities, Tarrant Regional Water District, and Upper Trinity Regional Water



District) published BMPs specifically for North Texas water conservation programs. These recommendations for BMPs have also been reviewed and considered in the preparation of this Plan.

As a wholesale supplier of water to customers, NTMWD does not have any direct control over the end user of water, nor does it have the authority to create ordinances or enforce the measures laid out in this Plan for end users. To work within the confines of its role as a wholesaler, NTMWD has developed a Model Water Conservation Plan which can be used by Member Cities and Customers, who then can enforce those measures through ordinances or regulations on end users (Section 8.02). NTMWD has also specified required minimum conservation strategies for its Member Cities and Customers (Section 8.03).

The District continually re-evaluates ways to improve water conservation and efficiency. The District is committed to evaluating and implementing new BMPs, as appropriate, whenever new opportunities to improve upon water conservation and efficiency are identified. The District's efforts also include receiving input from water conservation advocacy groups, like the Sierra Club and the National Wildlife Federation, to further enhance water conservation and efficiency.

The goal of the Water Conservation Plan is to serve as good stewards of water resources by preserving water supplies for essential uses and the protection of public health. The objectives to achieve this goal are as follows:

The objectives of this Water Conservation Plan are as follows:

- To reduce the loss and waste of water.
- To improve efficiency in both indoor and outdoor water use.
- To maximize the level of recycling and reuse.
- To protect and preserve environmental resources.
- To extend the life of current water supplies.
- To raise public awareness of water conservation and encourage responsible personal behavior through public education programs.



1.01 CONSERVATION COORDINATOR AND TEAM

NTMWD hosts a committed multi-disciplinary conservation team that includes executive level support and participation, engineers and scientists, communications professionals, public education specialists, and support staff. NTMWD has a designated Conservation Coordinator as well as two full-time water conservation positions that are fully dedicated to water conservation advocacy and advancement.

1.02 WATER CONSERVATION PROGRAM HISTORY AND AWARDS

Over the last 20 years, NTMWD has developed a robust water conservation program that has helped significantly reduce the per person water demand in its service area. This has been a concerted effort between both NTMWD and its Member Cities and Customers. The success of a conservation program ultimately hinges on the participation of both the water provider and the water user.

Important elements of the conservation plan include:

- Expenditures of more than \$8.6 million on water conservation from 2018 through 2022.
- An award-winning public education program, coordinated with other suppliers in the region.
 - Water My Yard program of weather stations and communication with residents on water needs for lawns.
 - o Water4Otter youth water conservation program.
 - Annual North Texas Regional Water Conservation Symposiums, co-sponsored with other suppliers in the region.
 - Water is Awesome public education campaign developed in collaboration with TRWD and DWU.
- Robust support and technical assistance for Member Cities and Customers.
 - Development of model water conservation plans that can be implemented by Member Cities and Customers.
 - Sponsorship of Alliance for Water Efficiency membership for Member Cities and Customers.
 - o Regular conservation workshops for Member City and Customer staff.



- o Industrial/Commercial/Institutional/Multifamily (ICIM) water efficiency program.
- Annual reporting on water use and conservation by Member Cities and Customers to allow tracking of conservation efforts.
- Required conservation strategies that go beyond minimum regulatory requirements.
 - Limiting lawn watering to no more than twice a week in the summer and no more than once per week in the winter.
 - o Time of day restrictions on lawn watering.
 - Conservation-oriented retail water rate structures for Member Cities and Customers.

NTMWD's conservation efforts have not gone unrecognized. Through the water permitting process for Bois d'Arc Lake, NTMWD proved its achievement of the highest practicable levels of conservation, a requirement for any inter-basin transfer permit from TCEQ. Furthermore, NTMWD has won numerous awards for its leadership in conservation in the region and beyond. **Table 1** lists the awards the District's water conservation efforts have won in recent years.

TABLE 1: NTMWD WATER CONSERVATION AWARDS

Year	Award	In Honor of:
2006	Texas Section American Water Works Association Watermark Award	Water IQ Public Education Campaign
2007	Texas Public Relations Association Silver Spur Award for External Relations	Water IQ Public Education Campaign
2007	Texas Public Relations Association Best of Texas Silver Award	Water IQ Public Education Campaign
2007	Texas Public Relations Association Best of Texas Silver Spur Award for Special Video Programs	Water IQ Public Education Campaign
2011	TCEQ Texas Excellence Award	Water Conservation Program
2011	Texas Water Conservation Advisory Council Water Conservation Award	Innovation in Conservation
2011	American Advertising Federation ADDY Award	Water IQ Public Education Campaign
2011	Texas Section American Water Works Association Watermark Award	Water IQ Public Education Campaign
2013	American Water Works Association Public Communications Achievement Honorable Mention	Water IQ Public Education Campaign
2014	American Water Works Association Public Communications Achievement Honorable Mention	Water IQ Public Education Campaign



Year	Award	In Honor of:
2015	Texas Water Conservation Advisory Council Blue Legacy Award	WaterMyYard
2015	American Advertising Federation ADDY Award	Water4Otter Youth Water Conservation Program
2015	Texas Section American Water Works Association and Water Environment Association of Texas Watermark Award	Water4Otter Youth Water Conservation Program
2017	Texas Water Conservation Advisory Council Blue Legacy Award	Water4Otter Youth Water Conservation Program
2017	American Advertising Federation ADDY Award	Water IQ Public Education Campaign
2018	Texas Section American Water Works Association and Water Environment Association of Texas Watermark Award for Communications Excellence	Video, eNewsletters, and Social Campaigns
2022	TELLY Award	Water Is Awesome Public Education Campaign
2022	Texas Section American Water Works Association Water Conservation/Reuse Award	ICIM Water Efficiency Program
2022	Water Environment Association of Texas and Texas Section American Water Works Association Watermark Award	Water Is Awesome Public Education Campaign
2022	Water Environment Association of Texas and Texas Section American Water Works Association Watermark Award Honorable Mention	Water4Otter Youth Water Conservation Program
2023	Water Environment Association of Texas and Texas Section American Water Works Association Watermark Award	Water Conservation STEM Clinics
2023	Water Environment Association of Texas and Texas Section American Water Works Association Watermark Award Honorable Mention	No Water Trivia Water Conservation Program

Figure 1 shows the history of the District's use per person since 1988 (called per capita use and measured in gallons per capita day [GPCD]). The red bars show per capita use in dry years with no drought restrictions. The green bars are years in which there were temporary drought restrictions in use—the use would have been higher if the restrictions had not been in place. The blue bars are normal and wet years, when per capita use is naturally lower than in dry years. The black line shows a rolling average of per capita use for the last five years. The figure



shows a substantial reduction in per capita use as NTMWD has implemented its conservation efforts. **Figure 2** shows how the District's success in water conservation has affected the demands projected for the District's Long Range Water Supply Plan (LRWSP), which is currently under development. NTMWD's successful conservation program has reduced projected 2025 dry year demands by 95 MGD compared to what they would be if per capita demands were still at year 2000 levels and reduced projected 2080 dry year demands by 260 MGD.

FIGURE 1: NTMWD HISTORY OF PER CAPITA DEMAND

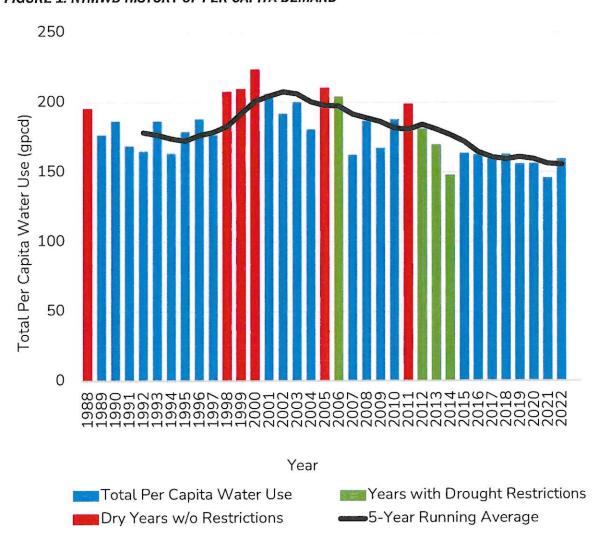
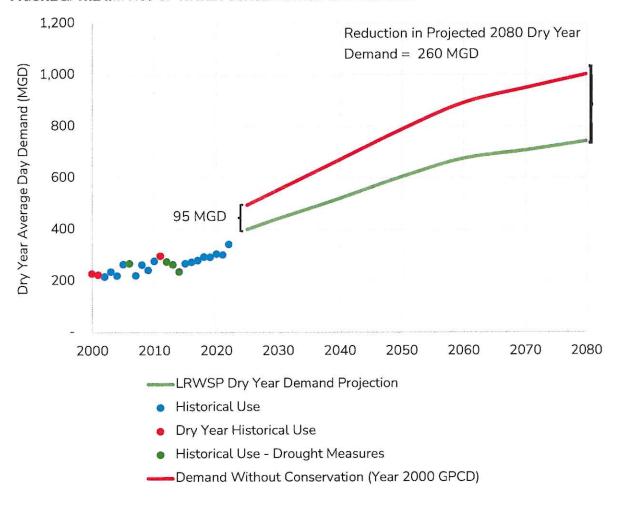




FIGURE 2: THE IMPACT OF WATER CONSERVATION ON DEMANDS



1.03 MINIMUM REGULATORY REQUIREMENTS CHECKLIST

TAC § 288.1(24) defines a water conservation plan as "[a] strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s)." Recognizing the need for efficient use of existing water supplies, TCEQ has developed guidelines and requirements governing the development of water conservation and drought contingency plans. NTMWD is both a wholesale water supplier as well as a retail water provider and must meet both requirements. The minimum TCEQ requirements and where they are addressed within this document are included in **Appendix B**.



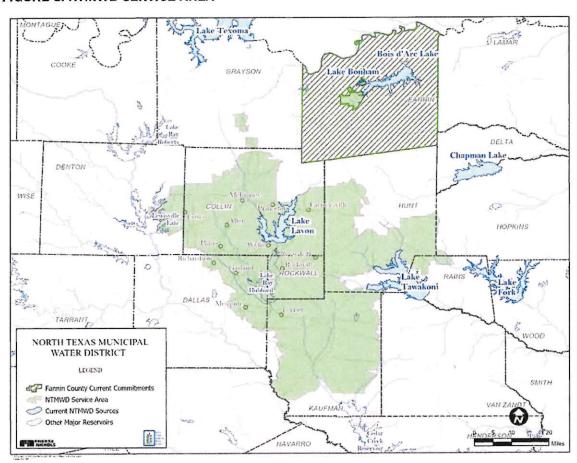
2.00 WATER UTILITY PROFILE

The completed utility profile for NTMWD for 2022 is included in **Appendix E**. This section summarizes the main components that are included within the utility profile.

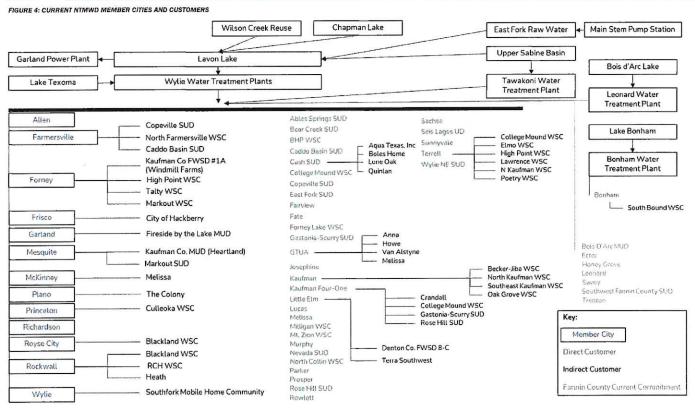
2.01 DESCRIPTION OF THE SERVICE AREA

NTMWD provides treated potable water to 13 Member Cities and 34 other Customers in North Central Texas. The District has also committed to serving additional customers in Fannin County. Many Member Cities and Customers provide wholesale service to other water suppliers, making these other suppliers indirect customers of NTMWD. **Figure 3** shows the NTMWD service area, which covers over 2,200 square miles in Collin, Dallas, Denton, Fannin, Grayson, Hopkins, Hunt, Kaufman, Rains, Rockwall, and Van Zandt Counties. **Figure 4** lists the District's current Member Cities, Direct Customers and Indirect Customers. Some customers receive NTMWD supplies both directly from the District as well as indirectly through another Member City or Customer.

FIGURE 3: NTMWD SERVICE AREA







WATER UTILITY PROFILE | PAGE 17

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WATER UTILITY PROFILE | PAGE 18



2.02 WATER CONSERVATION UTILITY PROFILE

A. CUSTOMER DATA

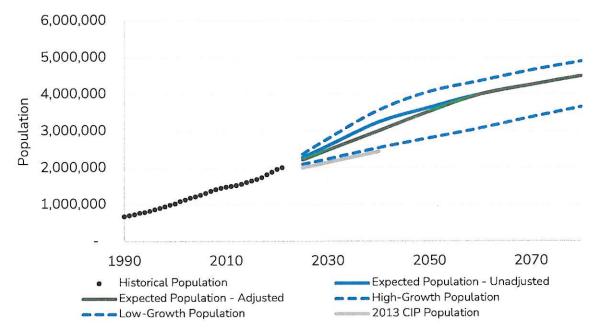
Historical population data and projected population are summarized in **Table 2** and **Figure 5**. Population projections were developed as part of the NTMWD Long Range Water Supply Plan and are inclusive of current Member Cities and Customers, and customers in Fannin County that NTMWD has committed to serve. Those potential future customers include Bois d'Arc MUD, Ector, Honey Grove, Leonard, Savoy, Southwest Fannin County SUD, and Trenton.

TABLE 2: HISTORICAL AND PROJECTED POPULATION OF SERVICE AREA

Year	Population of Service Area
2019	1,887,639
2020	1,960,757
2021	2,021,298
2022	2,103,481
2023	2,185,664
2030¹	2,486,000
2040	3,008,000
2050	3,536,000
2060	3,998,000
2070	4,258,000
2080	4,495,000

¹2030 – 2080 are Expected Scenario Population Projections - Adjusted from Long Range Water Supply Plan

FIGURE 5: LRWSP POPULATION PROJECTIONS





B. WATER USE DATA FOR SERVICE AREA

NTMWD provides treated water supplies. The total amount of raw water diverted for treatment for the previous five years for all water uses is summarized in **Table 3** and **Figure 6**. The projected dry year water demands are summarized in **Table 4** and **Figure 7**.

TABLE 3: HISTORICAL RAW WATER DIVERSION DATA (ACRE-FEET)

Year	2018	2019	2020	2021	2022
January	19,377	19,024	18,917	20,061	21,955
February	16,750	17,014	17,579	20,601	19,101
March	21,034	20,881	20,107	21,636	23,161
April	23,348	21,850	22,541	25,239	26,273
May	30,680	23,428	28,148	23,004	30,554
June	36,952	25,662	35,660	27,884	38,867
July	45,416	38,702	41,356	36,148	54,905
August	41,777	44,692	44,517	40,954	47,153
September	29,019	41,906	31,788	41,114	38,235
October	24,355	34,479	34,869	33,205	36,959
November	21,007	20,761	25,935	25,085	23,867
December	19,819	19,868	21,270	23,403	22,857
TOTAL	329,531	328,248	342,687	338,332	383,884

FIGURE 6: NTMWD RAW WATER DIVERSIONS SINCE 1999

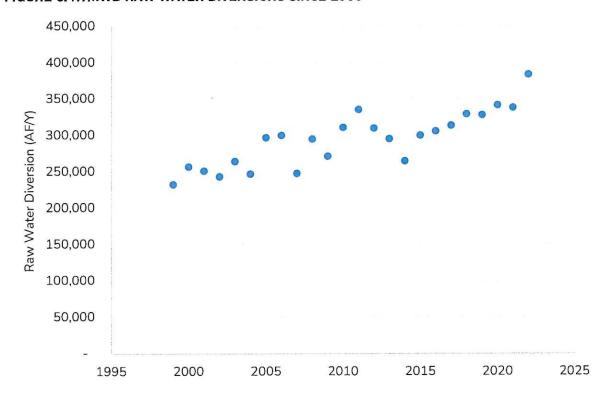


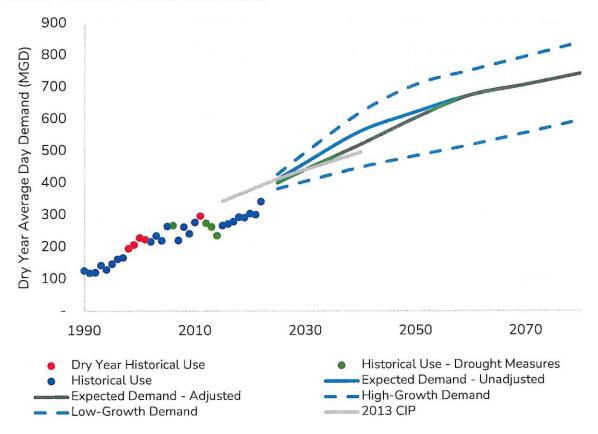


TABLE 4: PROJECTED DRY YEAR WATER DEMANDS

Year	Projected Demand (AF/Y)	Projected Demand (MGD) ¹
2025	449,494	401
2026	458,863	409
2027	468,232	418
2028	477,600	426
2029	486,969	434
2030	496,338	443
2031	505,056	451
2032	513,774	458
2033	522,492	466
2034	531,210	474
2035	539,928	482
2040	583,518	521
2050	677,141	605
2060	756,919	676
2070	792,908	708
2080	832,123	743

¹Expected Demand – Adjusted Projections from the LRWSP

FIGURE 7: LRWSP DEMAND PROJECTIONS





C. WATER SUPPLY SYSTEM DATA

NTMWD's existing sources of supply include Lavon Lake, Jim Chapman Lake, Lake Texoma, Lavon Lake watershed reuse, East Fork Water Reuse Project, the Main Stem Pump Station, Lake Tawakoni, Lake Fork, Bois d'Arc Lake, and Bonham Lake. **Table 5** shows the permitted and contracted supplies as well as the projected 2025 available supply. The reliable supply from existing sources is less than the permitted supply because of reservoir yields, current return flow levels, and water quality. NTMWD is seeking additional supplies to meet its projected demands going forward.

TABLE 5: NTMWD PERMITTED AND CURRENT SUPPLY AMOUNTS (AC-FT/YR)

Source	Permitted or Contracted	2025 Supply ¹	Comments
Existing Surface Wate	er	Mark Walte	
Lavon Lake	118,670	90,240	Estimated firm yield with minimum pool of 467, adjusted for climate
Jim Chapman Lake	57,214	42,037	NTMWD's share of firm yield based on minimum elevation of 415.5, adjusted for climate
Lake Texoma	197,000	71,296	Expected supply with 4:1 Blending
Bois d'Arc Lake	175,000	62,776	Adjusted for climate
Lake Bonham	5,340	1,906	Yield limited by Bonham demand
Reuse Supplies			
Lavon Watershed Reuse	71,882	46,600	Based on projected return flows
East Fork Water Reuse Project	157,393	41,400	Yield based on analysis of available diversions during the critical period for Lavon Lake with projected return flows and limited by the capacity of the East Fork Water Reuse Project
Main Stem Pump Station	56,050	56,050	Contract with Trinity River Authority
Upper Sabine Basin	A TOTAL	A WEST	STATE OF THE STATE
Long-Term Upper Sabine	11,100	10,762	
Interim Upper Sabine	33,900	31,164	Contract expires in 2025
Total	883,549	454,231	

¹2025 Supply from NTMWD Long Range Water Supply Plan



NTMWD operates the following water treatment plant facilities:

- Wylie WTPs Four water treatment plants in Wylie, Texas, near Lavon Lake, with a total nominal treatment capacity of 840 MGD.
- Tawakoni WTP Water treatment plant northeast of Terrell with a nominal treatment capacity of 30 MGD.
- Leonard WTP Water treatment plant located in Leonard, Texas, south of Bois d'Arc Lake with a nominal treatment capacity of 70 MGD.
- Bonham WTP Water treatment plant located in Bonham, Texas, near Lake Bonham with a nominal treatment capacity of 6.6 MGD.

It should be noted that nominal treatment capacities are not sustainable over an extended period of time.



WYLIE WATER TREATMENT PLANT



D. WASTEWATER SYSTEM DATA

NTMWD owns and/or operates 16 wastewater treatment plants. These are summarized in **Table 6.** The table includes both the permitted discharge as well as the receiving stream. **Figure 8** shows NTMWD's raw water supply system and the water and wastewater treatment plants in addition to the wastewater treatment plants listed in **Table 6**,

NTMWD has permitted and is currently constructing the Sister Grove Regional Water Resource Recovery Facility (RWRRF) in the Lavon Lake watershed. This facility will have an initial capacity of 16 MGD and an ultimate capacity of 64 MGD.

TABLE 6: NTMWD WASTEWATER TREATEMENT PLANTS

WWTP	TCEQ Number	Permitted Discharge (MGD)	Operator	Owner	Receiving Stream
Bear Creek	14577-001	0.75	NTMWD	City of Lavon	Bear Creek to Lake Ray Hubbard
Buffalo Creek	12047-001	2.25	NTMWD	NTMWD	Buffalo Creek
Farmersville #1	10442-001	0.225	NTMWD	City of Farmersville	Unnamed tributary of Elm Creek
Farmersville #2	10442-002	0.754	NTMWD	City of Farmersville	Unnamed tributary of Elm Creek
Floyd Branch	10257-001	4.75	NTMWD	NTMWD	Floyd Branch to Cottonwood Creek
Muddy Creek	14216-001	20	NTMWD	NTMWD	Muddy Creek to Lake Ray Hubbard
Panther Creek	14245-001	25	NTMWD	NTMWD	Unnamed tributary of Panther Creek
Rowlett Creek	10363-001	24	NTMWD	NTMWD	Rowlett Creek
Sabine Creek	14469-001	3	NTMWD	NTMWD	Parker Creek
Seis Lagos	11451-001	0.25	NTMWD	NTMWD and Seis Lagos UD	Unnamed tributary of Lavon Lake
South Mesquite	10221-001	41	NTMWD	NTMWD	South Mesquite Creek
Squabble Creek	10262-001	1.2	NTMWD	NTMWD	Squabble Creek



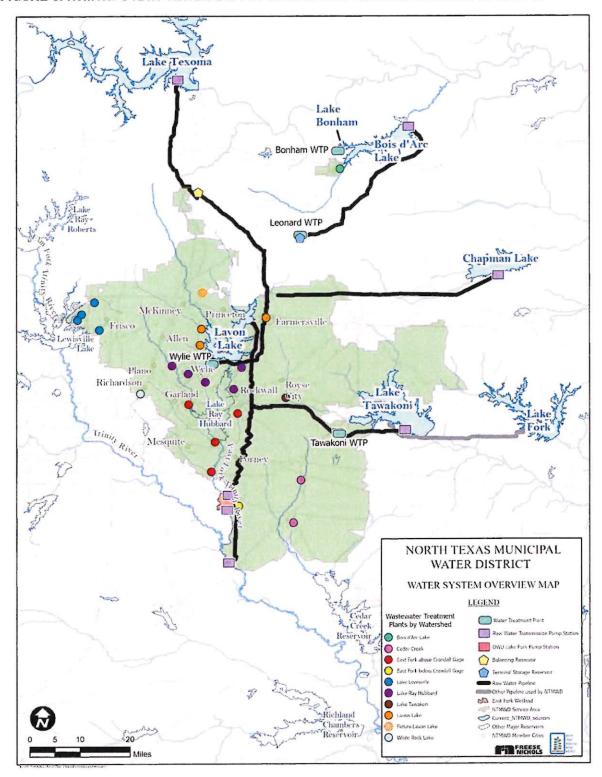
WWTP	TCEQ Number	Permitted Discharge (MGD)	Operator	Owner	Receiving Stream
Stewart Creek West	14008-001	5	NTMWD	NTMWD	Stewart Creek
Wilson Creek	12446-001	64	NTMWD	NTMWD	Lavon Lake Seg.# 0821



WILSON CREEK WASTEWATER TREATMENT PLANT



FIGURE 8: NTMWD'S RAW WATER SUPPLY SYSTEM AND EXISTING SOURCES OF SUPPLY





3.00 WATER CONSERVATION GOALS

3.01 5- AND 10-YEAR GOALS

As a wholesale water supplier, NTMWD does not control the water use of its Member Cities and Customers and does not have a direct relationship with the retail customers who are the ultimate consumers of the water. The total GPCD for NTMWD's system can be affected by changes in per capita use by its Member Cities and Customers and can also be affected by how much water NTMWD is asked to supply to high per capita use customers or low per capita use customers. These factors are not controlled by NTMWD. To gain a more accurate understanding of water use within its service area and assist Member Cities and Customers in conservation efforts, NTMWD, where practicable, works with its Member Cities and Customers to utilize the *Guidance and Methodology for Reporting on Water Conservation and Water Use*. This document was developed by TWDB and TCEQ, in consultation with WCAC, and was used by NTMWD for sector-based water use reporting. NTMWD also affords its Member Cities access to the Alliance for Water Efficiency's tracking tools at the District's expense, which enables the Member Cities to track water use more adequately by sector.

Figure 9 shows the historical total raw water per capita use for NTMWD from 1988-2022. The figure also distinguishes when drought restrictions were active and when there was a dry year. As is the case with most suppliers, there is great variability in per capita use due to weather and other factors. A five-year average total GPCD with credit for indirect reuse is plotted to show long-term trends. Since the early 2000s, NTMWD has greatly reduced the 5-year average total GPCD. As of 2022, the five-year average (2018-2022) for total raw water GPCD without credit for indirect reuse is 157 MGD. As of 2022, the five-year average for total GPCD with credit for indirect reuse is approximately 118 GPCD. Note that both Water Conservation Implementation Task Force Report 362 and the 2021 Region C Water Plan identify a goal of 140 GPCD incorporating a credit for both direct and indirect reuse. NTMWD has mirrored that approach in its calculation of total GPCD with a credit for indirect reuse.

Figure 10 summarizes the historical total treated per capita use for NTMWD from 1990 – 2022 by water use category. Total treated per capita use is slightly lower than total raw per capita use due to associated treatment and transmission losses. Figure 11 summarizes the historical ICIM treated per capita use for NTMWD from 1990-2022 by category. Prior to 2020, residential sales included both single and multifamily residences. These were divided into separate categories after 2020 in order to remain consistent with TWDB terminology. Historical information from the TWDB water use surveys was incorporated where available.



FIGURE 9: NTMWD TOTAL RAW WATER PER CAPITA USE

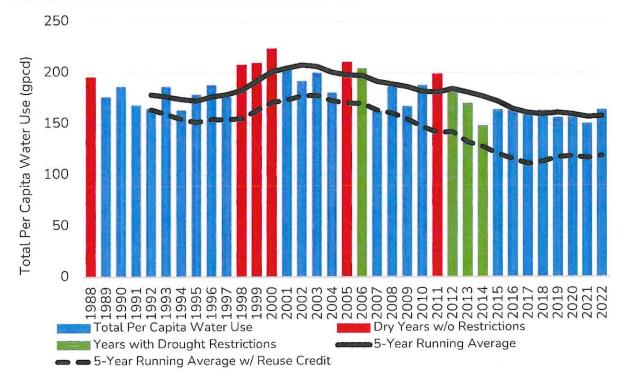


FIGURE 10: NTMWD TOTAL TREATED PER CAPITA USE BY CATEGORY

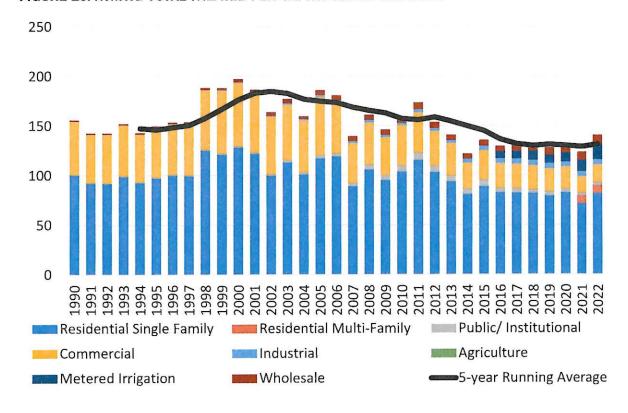




FIGURE 11: NTMWD ICIM TREATED PER CAPITA USE BY CATEGORY

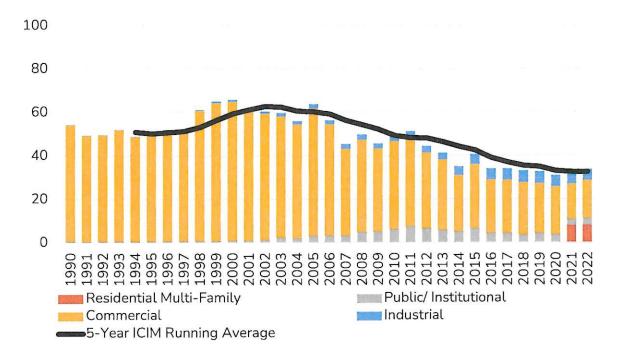


Figure 12 compares the historical per capita use with the five-year and ten-year GPCD goals from the 2019 Water Conservation Plan. Based on the current data, NTMWD is on track to meet the five-year goals established in the previous water conservation plan.

FIGURE 12: NTMWD 2019 WCP TOTAL 5-YEAR AVERAGE PER CAPITA AND PER CAPITA GOALS

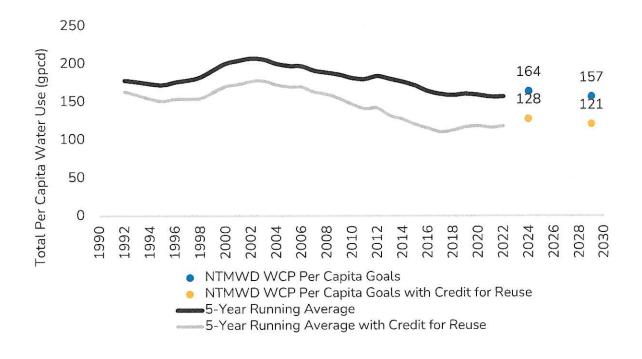




Table 7 shows the projected per capita use goals with credit for indirect reuse for NTMWD. NTMWD has outlined its five- and ten-year total GPCD goals and total GPCD with a credit for indirect reuse, as the GPCD goals recommended by the Region C Water Planning Group and approved by the TWDB incorporate a credit for indirect reuse. The 2019 WCP ten-year total GPCD goal of 157 is recommended to be maintained as the five-year goal for the 2024 WCP. The ten-year goal was developed by assuming 1% annual reduction. Since NTMWD's total GPCD five-year rolling average in 2022 was equal to the five-year goal, it is recommended to maintain the historic five-year average as the five-year goal in the other categories as well. This historic five-year average includes 2022, which included a hot, dry summer that increased annual demands.

TABLE 7: 5-YEAR AND 10-YEAR TOTAL PER CAPITA USE GOALS (GPCD)

Description	Historic 5- Year Average	Baseline	5-Year Goal (2029)	10-Year Goal (2034)
Total (GPCD)	157		157	149
Reuse Credit (GPCD)	39	-	36	36
Total with Credit for Reuse (GPCD)	118	140	121	113
Residential (GPCD)	83	-	83	80
ICIM (GPCD)	32	-	32	30
NTMWD Water Loss (Percentage)	5%		5%	5%

3.02 METHOD FOR TRACKING

NTMWD requires Member Cities and Customers to complete annual conservation reports by March 31 of the following year and submit them to NTMWD. A copy of the form for the annual report is included as **Appendix D**. NTMWD compiles these reports and uses them to help generate its own annual water conservation report.

The completion of this annual water conservation report allows NTMWD to track the effectiveness of its water conservation programs over time and reassess those programs that are not providing water savings, ensuring maximum water use efficiency and greater levels of conservation. Updates on the water conservation program and GPCD data will be reported to the Water Committee of the NTMWD Board and the Board of Directors.



4.00 METERING AND WATER LOSS CONTROL

4.01 METERING PROGRAM

One of the key elements in water conservation is careful tracking of water use and control of losses. Accurate metering of water diversions and deliveries, detection and repair of leaks in the raw water transmission and potable water distribution systems, and regular monitoring of nonrevenue water are important elements of NTMWD's program to control losses. NTMWD has an ongoing meter vault standardization program that includes updating meters at water delivery sites. These metering upgrades allow for more accurate metering and ultimately, more careful monitoring of water use and water loss control.

Deliveries to all NTMWD's retail customers (like deliveries to all its wholesale customers) are metered. NTMWD tracks use for its retail customers to ensure that the meters remain in good working order. NTMWD has implemented a retail meter replacement program, in accordance with AWWA standards. At a minimum, all retail customer meters are planned to be replaced regularly, with an estimated interval of 15 years.

4.02 MONITORING AND RECORD MANAGEMENT PROGRAM

As a wholesale water supplier, NTMWD has instituted a program of careful monitoring and record management to assure that its Member Cities and Customers are charged appropriately for their water use.

The program includes the following elements:

- Deliveries to all Member Cities and Customers are metered by meters with accuracy of ±2%. These readings are used to bill Member Cities and Customers.
- The meters used to measure deliveries to the Member Cities and Customers are calibrated quarterly and tested, as necessary.
- Potable drinking water leaving NTMWD's water treatment plants is metered by meters with accuracy of ±2%.
- Plant potable water discharge meters are calibrated at least quarterly and more frequently if necessary.
- All meter readings are sent to Member Cities and Customers so that they can compare the readings against the operation of their systems.
- NTMWD monitors water loss in its delivery system. (For NTMWD, water loss is defined as raw water delivered to the water treatment plants less metered sales to Member Cities and Customers and known non-revenue water use.) NTMWD maintains and



manages electronic records of these raw water deliveries and sales, and tracks losses between the raw water system and treated water sales.

 Some NTMWD Member Cities and Customers have leak detection crews that are utilized and available for other Member Cities and Customers.

4.03 WATER LOSS CONTROL PROGRAM

NTMWD meters its raw water diversions by meters with accuracy of $\pm 2\%$. These meters are calibrated on an annual basis by NTMWD and are repaired and/or replaced as needed.

NTMWD has an active program to control, detect, and repair leaks:

- NTMWD has implemented a Linear Asset Management Plan (LAMP) to assist with the
 control of water loss. The program provides a framework to inventory, assess risk,
 prioritize and perform condition assessment inspections, and prioritize repairs and reinspections. The LAMP program will not eliminate catastrophic pipeline failures, but it
 does aim to reduce them.
- All NTMWD raw water transmission pipelines are reinforced concrete cylinder pipe or steel cylinder pipe with an internal protective liner and an external protective coating.
 Because of the multiple layers of material, these pipelines have very long service lives and are not subject to frequent development of leaks.
- Most joints in NTMWD water transmission pipelines are designed with bell and spigot joint construction including a rubber gasket. Some joints are welded.
- All NTMWD water transmission pipelines are constructed in legally defined and identified rights-of-way, properly registered with authorities in each county.
- NTMWD personnel routinely inspect NTMWD facilities and water transmission pipelines for leaks or mechanical problems. Repairs are undertaken as soon as practicable in order to minimize waste.
- NTMWD operates a program for right-of-way identification for construction projects adjacent to NTMWD facilities and water transmission pipelines in order to minimize leaks caused by pipeline damage during construction.
- NTMWD's metering program allows comparison of measured flows in the system and metered deliveries, which can be used to identify leaks.
- NTMWD's regular monitoring of unaccounted water (on a monthly basis) provides a further check for problems in the distribution system.
- NTMWD personnel perform regular inspections of its system to detect unauthorized connections.



CONTRACT REQUIREMENTS FOR WHOLESALE 5.00 **CUSTOMERS**

NTMWD has developed language for all contracts for the wholesale sale of water by NTMWD entered into, renewed, or extended after the adoption of this Plan that will require the wholesale customer and any wholesale customers of that wholesale customer to develop and implement a water conservation plan meeting the requirements of Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2 of the Texas Administrative Code. Note: NTMWD refers to their drought contingency plan (DCP) as the water resource and emergency management plan (WREMP) and should be considered synonymous with a DCP.

All wholesale contracts with Customers entered into, renewed, or extended after the adoption of this Plan will include the following language:

"Customer agrees to adopt, implement, and enforce any and all ordinances and policies related to water conservation and drought management as required by the Texas Water Code, rules of the TCEQ and/or as may be adopted by the Board of Directors of NTMWD. NTMWD's obligations pursuant to this Contract shall be subject to the Customer preparing and implementing any water conservation plans and drought contingency plans adopted by NTMWD and required or approved by the TCEQ, the Board, or any federal, state, or local regulatory authority with power to require or approve water conservation and drought contingency plans. Upon execution of this Contract, Customer shall submit its water conservation plan or water conservation measures, and drought contingency plan, to NTMWD for review and approval, and Customer agrees to amend its water conservation plan or other water conservation measures, and drought contingency plan as requested by NTMWD in order to comply with the requirements of NTMWD's water conservation plan and drought contingency plan, program and/or rules. Customer shall also submit any changes or amendments to its water conservation plan or water conservation measures, and drought contingency plan, to NTMWD for review and approval.

NTMWD has adopted a water conservation plan and a drought contingency plan, and may amend both from time to time. If Customer fails to implement NTMWD's and its own drought contingency plan when trigger conditions occur, NTMWD may implement rationing and collect the rate for water withdrawn as provided in Section 8(h) of this Contract, as well as enforce any contractual, statutory, or common law remedies available. The amount of water that is provided pursuant to this Contract when Customer is not in compliance with NTMWD's water conservation plan and drought contingency plan will be reduced to the amount estimated as necessary to satisfy Customer's demand if Customer was operating in compliance with both NTMWD's and Customer's drought contingency plans.

If NTMWD authorizes Customer to resell water from the System pursuant to the conditions included herein, Customer shall require through a contract condition that any successive



user(s) of water from the System must implement water conservation measures that comply with the NTMWD's and Customer's water conservation plans, measures, programs, and/or rules."



6.00 RESERVOIR SYSTEM OPERATIONS PLAN

NTMWD has several raw water supply sources. Table 8 summarizes NTMWD's permitted and contractual raw water supply sources.

TABLE 8: NTMWD PERMITTED AND CONTRACTUAL RAW WATER SUPPLY (AC-FT/YR)

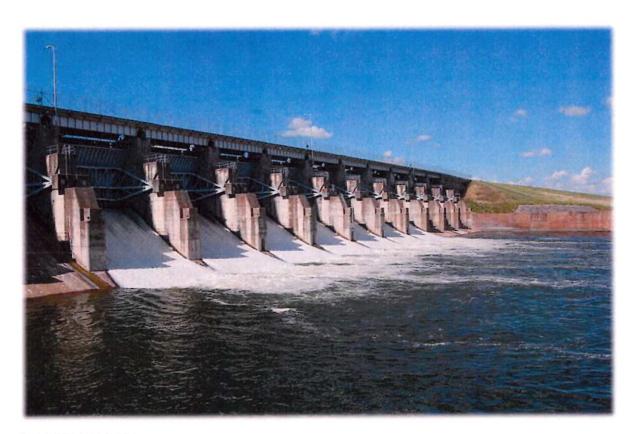
Source	2025 Supply	Comments
Lavon Lake	90,240	Estimated firm yield with minimum pool of 467, adjusted for climate
Jim Chapman Lake	42,037	NTMWD's share of firm yield based on minimum elevation of 415.5, adjusted for climate
Lake Texoma	71,296	Expected supply with 4:1 Blending
Bois d'Arc Lake	62,776	Adjusted for climate
Lake Bonham	1,906	Yield limited by Bonham demand
Lavon Watershed Reuse	46,600	Based on projected return flows
East Fork Water Reuse Project	41,400	Yield based on analysis of available diversions during the critical period for Lavon Lake with projected return flows and limited by the capacity of the East Fork Water Reuse Project
Main Stem Pump Station	56,050	Contract with Trinity River Authority
Upper Sabine Basin (Long- term)	10,762	
Upper Sabine Basin (Interim)	31,164	Contract expires in 2025
Total	454,231	

Water from Jim Chapman Lake is pumped by pipeline to the Lavon Lake watershed, where it flows into Lavon Lake. A pipeline from Lake Texoma brings water from the lake directly to NTMWD's water treatment plant in Wylie. Treated wastewater effluent from the Wilson Creek Regional Wastewater Treatment Plant is returned to the Lavon Lake watershed. Water from East Fork Water Reuse Project is pumped to Lavon Lake. Soon, Sister Grove RWRRF will also discharge treated wastewater effluent to the Lavon Lake watershed for subsequent use by NTMWD. Water from Lake Tawakoni (Upper Sabine Basin) is pumped to the Lake Tawakoni Water Treatment Plant and delivered as raw water to Lavon Lake. Water from Lake Bonham is pumped to the NTMWD Bonham Water Treatment Plant.



NTMWD has developed a reservoir system operations plan for its various sources of supply to maximize the efficiency of operation within existing water rights. The NTMWD reservoir system operations plan includes pumping from alternative sources before Lavon Lake reaches extremely low elevations to avoid water supply problems that would be caused by low water surface elevations. The reservoir system operations plan minimizes pumping into the Lavon Lake watershed during flood conditions.

The reservoir system operations plan also avoids unnecessary pumping from alternative sources to minimize energy use and avoid causing low elevations in other sources. Overall, the operation of the reservoir system is intended to protect the District's water supply while optimizing the use of the District's sources (within the constraints of existing water rights), keeping energy use for pumping as low as practical, maintaining water quality, and avoiding unnecessary impacts on recreational users of the reservoirs and fish and wildlife.



LAVON LAKE DAM



7.00 CONSERVATION PLAN ADOPTION AND ENFORCEMENT

7.01 MEANS OF IMPLEMENTATION AND ENFORCEMENT

The Executive Director of NTMWD is authorized to implement and enforce the water conservation plan. Appendix F includes the TCEQ-required water conservation implementation report. NTMWD will submit this report to TCEQ annually by the required date (May 1). This report lists the various water conservation strategies that have been implemented, including the date the strategy was implemented. The report also lists the fiveyear and ten-year per capita water use goals from the previous water conservation plan, and the amount of water saved. This report will be used to review the effectiveness of NTMWD's water conservation program. Progress updates will be reported to the Water Committee of the NTMWD Board and the Board of Directors.

As a wholesale provider of water, NTMWD has no direct enforcement authority over those conservation practices ultimately implemented and enforced by its Member Cities and Customers. However, as discussed herein, NTMWD makes best efforts to ensure implementation and enforcement of its water conservation plan via outreach, technical assistance, and the contractual requirements for wholesale customers. Further, NTMWD's annual water conservation report provides a means by which NTMWD can measure its success and quantify water savings via conservation initiatives, thereby optimizing implementation of the Water Conservation Plan (the Plan) over time.

7.02 ADOPTION

Appendix H contains a copy of the minutes of the NTMWD Board of Directors meeting at which this water conservation plan was adopted.

TCEQ requires that water conservation plans be reviewed and, if necessary, updated every five years to coincide with the regional water planning process. This water conservation plan will be updated as required by TCEQ, and in addition, will be continually reassessed for opportunities to improve water efficiency and conservation based on new or updated information.

7.03 REGIONAL WATER PLANNING GROUP NOTIFICATION

NTMWD's service area is located within two regional water planning areas, Region C and the Northeast Texas Region (Region D). Appendix G includes copies of the letters sent to the Chairs of the Region C and Region D water planning groups with a copy of this water conservation plan.



8.00 WATER CONSERVATION PROGRAM

NTMWD has implemented several water conservation measures which allow the District to serve as a regional leader and resource for water conservation efforts throughout its service area. These water conservation measures are outlined below.

- The blue section outlines water conservation strategies that are specific to NTMWD.
- The green section outlines the technical assistance and outreach that NTMWD has implemented.
- The purple section outlines the water conservation strategies that all Member Cities and Customers must adopt in their own water conservation plans.
- The grey section outlines information on optional water conservation strategies that NTMWD encourages (but does not require) Member Cities and Customers to consider when developing their own water conservation plans.

8.01 NTMWD SPECIFIC WATER CONSERVATION STRATEGIES

NTMWD's conservation efforts begin at the source. The District has implemented several water conservation strategies that are specific to the District itself.

A. REUSE AND RECYCLING OF WASTEWATER

Th reuse of treated wastewater is a major source of water supply for NTMWD.

- NTMWD reused 61,014 acre-feet of treated wastewater from the Wilson Creek WWTP for municipal purposes in 2022.
- In addition, NTMWD has developed the East Fork Water Reuse Project and the Main Stem Pump Station (diverting treated wastewater purchased from the Trinity River Authority). These sources provided 39,058 acre-feet in 2022.
- NTMWD also reuses treated wastewater discharges from smaller WWTPs, which provided 616 acre-feet in 2022.

In total, reuse provided 26% of NTMWD's raw water diversions in 2022. This percentage varies from year to year and is dependent on wastewater flows. During drier conditions, demands are typically higher and wastewater flows (and thus reuse supplies) are typically lower.

NTMWD's reuse projects represent the largest municipal water supply based on reuse in the state of Texas. NTMWD intends to continue and develop reuse supplies in the future.



The 18 wastewater treatment plants that NTMWD owns and/or operates use treated effluent for all necessary wastewater plant washdowns and for wastewater plant site irrigation. NTMWD also makes treated wastewater from its plants available for direct reuse for landscape irrigation use. In 2022, 1,898 acre-feet of NTMWD's treated wastewater was reused for off-site irrigation.

NTMWD has been recognized, both at the state and national level, for its reuse program. **Table 9** lists the awards the District's reuse efforts have won in recent years.

TABLE 9: NTMWD REUSE AWARDS

Year	Award	In Honor of:
2008	Water Reuse Association Large Project of the Year	East Fork Water Reuse Project
2010	WEAT Sidney L. Allison Award	East Fork Water Reuse Project
2011	TCEQ Texas Environmental Excellence Awards	East Fork Water Reuse Project
2012	ACEC Engineering Excellence Award	East Fork Water Reuse Project
2013	North Central Texas Council of Governments CLIDE Award	East Fork Water Reuse Project
2018	Texans by Nature Conservation Wrangle Award	East Fork Water Reuse Project
2022	WateReuse Award for Excellence Community Water Champion	East Fort Water Reuse Project and Main Stem Pump Station

B. WATERSHED PROTECTION

NTMWD formed the Lavon Lake Watershed Partnership to help protect water quality in the Lavon Lake watershed and developed a Watershed Protection Plan (WPP). The Partnership consists of NTMWD, Texas State Soil and Water Conservation Board, Texas A&M AgriLife and local stakeholders. NTMWD monitors and samples about 14 sites monthly on Lavon Lake to evaluate the water quality of the reservoir. There are an additional 14 sites monitored on tributaries within the watershed. Additionally, the major hydraulic inputs into Lavon Lake are monitored to evaluate the nutrient and pollutant loading. Studies are performed periodically to evaluate and model hydraulics, nutrient loading and pollutant loading of the reservoir. NTMWD also launched a conservation campaign in 2018 called "Love Lavon Lake" specifically aimed at familiarizing residents with their primary source of water.

The District regularly monitors and performs water quality sampling of Bois d'Arc Lake as well. Monitoring takes place at three sites in the lake. The information is used to evaluate



nutrient loading and pollutant loading of the reservoir. In 2021, NTMWD coordinated with local stakeholders and hosted multiple meetings in Fannin County to develop a voluntary, non-regulatory WPP for Bois d'Arc Lake.

The watershed protection plans for both Lavon Lake and Bois d'Arc Lake are available at www.ntmwd.com/watershed/.

NTMWD regularly monitors and samples its other water supplies, including Lake Tawakoni, Jim Chapman Lake, Lake Texoma, and the East Fork Water Reuse Project, to evaluate water quality and the impact of pollutant loading over time.

The District also monitors and samples the effluent of each of the NTMWD-operated wastewater treatment plants. That information is used to evaluate hydraulics, nutrient, and pollutant loading of the receiving waterbodies.

C. ZERO DISCHARGE FROM WATER TREATMENT PLANTS

Since 1975, NTMWD's water treatment plants have aimed to operate with zero discharge. Wash water from filter washing and residuals from the water treatment process are pumped to lagoons for solar drying. After settling of solids, suitable water is decanted from the lagoons and recycled to the head of the water treatment plant for treatment. This approach saves water and contributes to NTMWD's excellent control of nonrevenue water in treatment and distribution.

D. NON-PROMOTIONAL RATE STRUCTURE

NTMWD has a three-tiered increasing block rate structure for its retail customers. Additionally, it is required that Member Cities and Customers also adopt an increasing block water rate structure, if not already in place.

E. IN-HOUSE WATER CONSERVATION EFFORTS

NTMWD has implemented an in-house water conservation program, including the following elements:

- Wherever possible, landscapes will use native or adapted drought tolerant plants, trees, and shrubs.
- Irrigation at NTMWD facilities will occur between 11 p.m. and 5 a.m. in the peak consumption summer months (April 1 and ending October 31) to lower evaporation losses.
- Irrigation will be limited to the amount needed to promote survival and health of plants and lawns.
- Irrigation will be avoided on days of high water use.



Irrigation will be done with treated wastewater effluent wherever feasible and reasonable.

The recently constructed Bois d'Arc Lake Operations Center is a great example of NTMWD's exemplary in-house water conservation efforts. The facility serves as headquarters for the District's administrative operations at the lake and includes classroom and meeting spaces for local civic and school districts. The landscaping also utilizes minimal turf with the inclusion of native and drought tolerant plants.



BOIS D'ARC LAKE OPERATIONS CENTER



8.02 TECHNICAL ASSISTANCE AND OUTREACH

NTMWD has a strong focus on both providing technical assistance to its Member Cities and Customers as well as continuing outreach efforts through the District's own public education program.

A. NTMWD PUBLIC EDUCATION PROGRAM

As a regional wholesale water supplier, NTMWD has limited opportunities to directly interact with end users of water in its service area. However, NTMWD's public education program is intended to educate water suppliers and end users in conservation efforts, and to assist and supplement the public education efforts of its Member Cities and Customers to reach end users and effect water savings.

NTMWD's own public education and outreach efforts include the following elements:

- NTMWD has a dedicated Conservation Coordinator on NTMWD staff to field conservation-related queries from Member Cities and Customers and coordinate with media regarding conservation issues.
- Beginning in 2006 and continuing through 2018, NTMWD invested in the development and implementation of the "Water IQ: Know Your Water" campaign, including newspaper ads, radio spots, billboards, a website, and other forms of communication all intended to educate the public regarding water use and water conservation. During the 2017 campaign, over a quarter of a million people were reached by the program through media relations, outreach, and interactive media. The total audience reached through the campaign in 2017 was over 88 million impressions.
- In 2013, NTMWD participated in the "Water My Yard" program to install weather stations throughout its service area to provide consumers with a weekly email or text message and information through the Water My Yard website recommending the adequate amount of supplemental water that is needed to maintain healthy grass in specific locations. This service represents the largest network of weather stations providing ET-based irrigation recommendations in the state of Texas and provides the public with advanced information regarding outdoor irrigation needs, thereby reducing water use. Through a series of selections on the type of irrigation system a consumer has, a weekly email or text message is provided that will recommend how long (in minutes) that an irrigation system needs to run based on the past seven days of weather. This recommendation provides the actual amount of supplemental water that is required for a healthy lawn based on research of the Texas A&M Agrilife Extension Service and proven technologies.



- "Water4Otter" is a water conservation campaign for kids launched by NTMWD in 2014. It is based on the insight that most parents agree they would listen if their kids asked them to conserve water. The TWDB awarded the NTMWD a conservation grant to develop Water4Otter as a model program that could be used throughout the state. The 2023 program included 22 performances at 11 schools in eight different ISDs including stops at elementary schools in Wylie, Garland, Mesquite, Plano, Princeton, Richardson, and Royse City.
- "Love Lavon Lake" is a water conservation campaign designed to help North Texans
 know their primary water source. The campaign launched in 2018 with a call to action
 to, "Conserve your water source. Love Lavon Lake." The campaign was based on
 market research showing the more people know the source of their drinking water, the
 more likely they are to use it wisely and efficiently.
- NTMWD implemented the "#PledgetoPlantSmart" initiative that seeks to inspire
 positive change in water conservation by encouraging North Texas residents to do their
 part and plant smart by selecting native or adapted plants for their garden and
 landscaping.
- NTMWD has prepared and presented programs to area cities, civic organizations and other groups concerning the need for water conservation and strategies that can be implemented on an individual and corporate level. Presentations have been made to Rotary Clubs, Lions Clubs, Chambers of Commerce, Leadership Training Classes, Boy Scouts, Girl Scouts, mayors, city councils, city staff, etc.
- Presenting at meetings and conferences to various commercial, institutional, and industry stakeholder groups: landscapers, irrigators, tree and nursery growers, pool and spa industries, school district facility managers, and hospitality industry groups.
- NTMWD provides conservation brochures and information to interested civic groups and schools. Information includes brochures on water-saving measures and xeriscape landscaping. NTMWD also participates in special events to distribute water conservation information to the public.
- NTMWD has been recognized at the state and national level for its water conservation program with several awards, as shown in Table 1 in the Introduction.

B. NORTH TEXAS REGIONAL WATER PROVIDER CONSERVATION INITIATIVES

The four major water providers in North Texas (North Texas Municipal Water District, Dallas Water Utilities, Tarrant Regional Water District and Upper Trinity Regional Water District) have implemented several joint conservation initiatives. These suppliers cover 12 of the 16 counties included in Region C. The following joint initiatives have been undertaken to date:



- In 2016, the Dallas Water Utilities and Tarrant Regional Water District launched a regional outreach campaign called "Water is Awesome." It aims to increase the general public's knowledge of the value of water in their everyday lives and encourages the public not to waste it. The campaign provides simple tips, mixed with a bit of humor, through television, radio, digital, print, outdoor, and social media advertising. A few years later, the NTMWD joined forces with DWU and TRWD to help raise awareness about the importance of water conservation to local residents through the "Water is Awesome" public Outreach Campaign.
 - In 2019, an additional tagline, "Keep Texas Water on Tap," was incorporated to promote the Water is Awesome brand and direct traffic to waterisawesome.com.
 - In 2020, a "customer city toolkit" provided customizable resources allowing cities to incorporate their logos with the campaign brand for their website, social media, and print. Cities are encouraged to use campaign resources to advance conservation efforts.
 - In 2021, the regional water providers collaborated to create the Regional Landscape Initiatives. This document was developed as a resource of best management practices for municipal staff to help reduce water waste and encourage long-term water conservation in the North Texas region. Information consists of the background, importance, and benefits of each BMP and key talking points to consider when implementing the strategy. Several of the optional water management measures included in this Plan are from this collaborative initiative.
 - o The 2023 campaign will include a focus on short HGTV-style web series about converting yards into drought-resistant, water-conservative yardscapes.
- NTMWD has partnered with the other major water providers to host an annual North
 Texas Regional Water Conservation Symposium, an event where leading water
 conservation experts present best management practices. Speakers present on topics
 related to conservation's value, outreach, best practices, and building relationships. In
 2022, the 16th Annual North Texas Regional Water Conservation Symposium was held
 with attendees from across the region. Other regions of the state, including the Central
 and Gulf Coast regions, have organized similar symposiums modeled after the North
 Texas example.

C. OTHER CONSERVATION PARTNERSHIPS

NTMWD provides support for and partners with many other entities to promote conservation.



- NTMWD operates the John Bunker Sands Wetland Center in cooperation with the Rosewood Corporation. NTMWD provides a portion of the funding for the operation and maintenance and personnel cost of the Center. As part of its mission, the Center provides education to the public, area school districts, wildlife and conservation organizations, and research institutions in the areas of water supply, water conservation and reuse.
- NTMWD has partnered with Texas A&M AgriLife Extension Service to provide proven, scientific-based best management practices to the region through public events, seminars, and brochures.
- NTMWD is an EPA WaterSense Promotional Partner and participates in the EPA
 Water Sense sponsored "Fix a Leak Week." NTMWD encourages all Member Cities and
 Customers to become EPA WaterSense Partners.
- Member of WENNT (Water Efficiency Network of North Texas). WENNT is a
 conglomerate of cities and water providers in the Dallas-Fort Worth area that meets
 monthly to discuss water conservation efforts and highlight specific programs.

 Attending these monthly meetings allows participants to gain new ideas and learn
 about new resources that may benefit their program.
- Member/partner of the **Alliance for Water Efficiency** (NTMWD membership, as well as membership paid for by NTMWD for Member Cities).
- Member/partner for the Texas Water Foundation.
- Member of American Water Works Association and American Water Works
 Association Research Foundation.
- NTMWD has been a supporting participant and member of the Texas Water Smart educational campaign and participates at Texas Water Smart meetings, conferences, and media events designed to increase public awareness and education on water conservation.
- NTMWD provided funding for the conversion of the Texas Smartscape CD-ROM into an interactive website. Texas Smartscape is an educational tool designed to assist citizens with the design and development of landscaping using Texas native and drought tolerant plants. NTMWD promotes the use of the Texas Smartscape website (www.txsmartscape.com).
- The District frequently evaluates opportunities to partner on public education with other entities in the region and around the state.



D. TECHNICAL ASSISTANCE FOR MEMBER CITIES AND CUSTOMERS

NTMWD continuously strives to provide more technical assistance to aid Member Cities and Customers implement their own public education programs on conservation.

- NTMWD hosts an Online Portal on the NTMWD website for Member Cities and Customers to access and share information on water conservation programs.
- NTMWD holds Regularly Scheduled Meetings with Member Cities and Customers for water supply updates, public campaign strategies, and legislative activities related to water and water conservation.
- NTMWD purchases American Water Works Association Research Foundation
 Publications for use by Member Cities and Customers to further enhance resources for water efficiency, water rate structures, etc. Additionally, NTMWD pays for Member City and Customer membership to the Alliance for Water Efficiency.
- To assist its Member Cities and Customers in the development of their own water conservation plans, NTMWD has developed a Model Water Conservation Plan for NTMWD Member Cities and Customers. The Model Water Conservation Plan addresses the TCEQ requirements for water conservation plans for municipal use by public water suppliers and includes advanced water conservation strategies beyond TCEQ requirements that mirror NTMWD's plan. This is available online at https://www.ntmwd.com/login/portal/.
- Since 2003, NTMWD has held Water Conservation Workshops for staff of its Member Cities and Customers. These workshops have covered several conservation-related topics, including TCEQ requirements for water conservation and drought contingency plans, advanced water conservation strategies, current NTMWD water conservation efforts, water conservation programs of the cities, current drought status, progress on future water supplies, and related topics. These workshops also provide training and education regarding water use accounting, irrigation evaluations, industrial, commercial, and institutional audits, and other procedures. Additional examples include workshops on Water Loss Audit Training as well as on the TWDB Water Conservation Planning Tool.
- Based on the annual reporting data collected from Member Cities and Customers from 2022, approximately 24% of the District's treated water sales went to supply Industrial, Commercial, Institutional, and Multifamily (ICIM) users within their service area. To target programs for this customer base, the District hired Plummer Associates, Inc. to create the Industrial, Commercial, Institutional and Multifamily Program. The ICIM program provides NTMWD Member City and Customer staff with the knowledge and tools necessary to identify ICIM customers with high water usage. This program



was created to categorize water use data to find outliers and identify areas to concentrate water conservation efforts. This program can help Member Cities' and Customers' ICIM water customers develop targeted methods for increasing water efficiency as an alternative to a traditional voluntary approach for water consumption improvement.

- As part of the ICIM program, the District is currently engaging with the Member Cities and Customers to encourage their ICIM customers to participate in Water Efficiency Opportunity Surveys. These surveys encompass a building audit that recommends various water conservation measures that can be implemented to save both money and water. Items addressed include toilet retrofits, urinal retrofits, showerhead retrofits, lavatory retrofits, non-lavatory faucet retrofits, leak repair, water cooled ice machine retrofit, commercial disposer, food steam, cooling tower efficiency and irrigation system efficiency. As of June 2023, NTMWD has utilized the ICIM program to audit four buildings resulting in an estimated annual water savings of 87.4 million gallons.
- As part of its wastewater system, NTMWD has developed Industrial Pretreatment Programs for the cities of Allen, Forney, Frisco, McKinney, Mesquite, Murphy, Plano, Richardson, Rockwall, Terrell, and Wylie. The pretreatment programs developed by NTMWD are adopted and implemented by the cities, which are also responsible for enforcement of the programs. By reducing allowable volumes of specific pollutants and encouraging pretreatment of industrial wastes, this joint effort by NTMWD and the cities has improved water quality in the region's streams and reservoirs. NTMWD industrial pretreatment personnel are also available to assist cities on request in the review or design of systems to allow industrial recycling and reuse of wastewater. Such systems have reduced water use by some industries, while also reducing wastewater volumes and saving money for the industries.
- NTMWD encourages its Member Cities and Customers to develop and implement
 Rebate and Bulk Purchasing Programs, that may benefit the Member Cities and
 Customers in achieving overall water savings. Further, NTMWD provides technical
 assistance to those Member Cities and Customers who wish to implement rebate and
 bulk purchasing programs.



8.03 REQUIRED MEMBER CITY AND CUSTOMER CONSERVATION STRATEGIES

The following water conservation strategies *must* be implemented by NTMWD Member Cities and Customers in their water conservation plans. These strategies represent minimum measures to be implemented and enforced to promote water conservation and are to remain in effect on a permanent basis.

Member Cities and Customers are required to develop and maintain regulations, ordinances, policies, or procedures for enforcement of water conservation guidelines. Examples of several sample ordinances are included in the Model Plans.

A. TCEQ CONSERVATION PLAN REQUIREMENTS FOR A PUBLIC WATER SUPPLIER

TCEQ has established rules for the development of water conservation plans for public water suppliers that provide retail services. The rules for water conservation plans for public water suppliers are contained in Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.2 of the Texas Administrative Code. These rules are included in **Appendix B**. NTMWD requires that all Member Cities and Customers fulfill these regulatory requirements in their own water conservation plans.

Minimum Conservation Plan Requirements for Public Water Suppliers

TCEQ's minimum requirements for water conservation plans for public water suppliers are shown below:

- 288.2(a)(1)(A) Utility Profile
- 288.2(a)(1)(B) Record Management System
- 288.2(a)(1)(C) Specific, Quantifiable Goals
- 288.2(a)(1)(D) Metering of Diversions (NTMWD meets this requirement; see Section 4.0. Member Cities and Customers must measure non-NTMWD diversions)
- 288.2(a)(1)(E) Universal Metering
- 288.2(a)(1)(F) Measures to Determine and Control Water Loss
- 288.2(a)(1)(G) Program of Continuing Public Education and Information
- 288.2(a)(1)(H) Non-Promotional Rate Structure
- 288.2(a)(1)(l) Reservoir System Operation Plan (NTMWD meets this requirement; see Section 6.0)



- 288.2(a)(1)(J) Means of Implementation and Enforcement
- 288.2(a)(1)(K) Documentation of Coordination with Regional Water Planning Groups
- 288.2(c) Review and Update of Plan

Additional Requirements for Suppliers Serving a Current Population of 5,000 or More

TCEQ has additional requirements for water conservation plans for public water suppliers serving more than 5,000 people. Those additional TCEQ requirements are addressed below:

- 288.2(a)(2)(A) Program of Leak Detection, Repair, and Water Loss Accounting
- 288.2(a)(2)(B) Requirement for Water Conservation Plans by Wholesale Customers

B. CONSERVATION COORDINATOR

The designation of a Conservation Coordinator is required by House Bill 1648, effective September 1, 2017, for all retail public water utilities with 3,300 service connections or more. NTMWD requires that all Member Cities and Customers appoint a Conservation Coordinator who will serve as the primary point of contact between the entity and the District on conservation matters.

The duties of the Conservation Coordinator are as follows;

- Submit an annual conservation report to NTMWD by March 31. This is referred to as
 the 'Appendix D Report.' NTMWD will provide a blank workbook for each Member City
 and Customer to fill out prior to the deadline.
- Submit an adopted water conservation and water resource and emergency
 management plan by May 1, 2024 (and every five years afterwards). These plans must
 be submitted to NTMWD, the applicable Regional Water Planning Group, TCEQ, and
 TWDB. The Conservation Coordinator is also responsible for submitting a copy of the
 Plan if it is updated after initial adoption and submission.

C. WATER CONSERVATION PRICING

Each Member City and Customer must adopt an increasing block rate water structure that is intended to encourage water conservation and to discourage excessive use and waste of water. An example water rate structure is as follows:

Residential Rates

- 1) Monthly minimum charge. This can (but does not have to) include up to 2,000 gallons of water use with no additional charge.
- 2) Base charge per 1,000 gallons up to the approximate average residential use.



- 3) 2nd tier (from the average to 2 times the approximate average) at 1.25 to 2.0 times the base charge.
- 4) 3rd tier (above 2 times the approximate average) at 1.25 to 2.0 times the 2nd tier.
- 5) Additional tiers with further increases if desired.
- 6) The residential rate can also include a lower tier for basic household use up to 4,000 gallons per month or a determined basic use.

Commercial/Industrial Rates

Commercial/Industrial rates should include at least 2 tiers, with rates for the 2nd tier set at 1.25 to 2.0 times that of the first tier. Higher water rates for commercial irrigation use are encouraged, but not required.

D. ORDINANCES, PLUMBING CODES, OR RULES ON WATER-CONSERVING FIXTURES

Member Cities and Customers must adopt ordinances, plumbing codes, and/or rules on water-conserving fixtures that at least meet the minimum statutory requirements. The state has required water-conserving fixtures in new construction and renovations since 1992. The state standards call for flows of no more than 2.5 gallons per minute (gpm) for faucets, 2.5 gpm for showerheads. As of January 1, 2014, the state requires maximum average flow rates of 1.28 gallons per flush (gpf) for toilets and 0.5 gpf for urinals. Similar standards are now required under federal law. These state and federal standards assure that all new construction and renovations will use water-conserving fixtures.

E. REUSE AND RECYCLING OF WASTEWATER

Most Member Cities and Customers do not own and operate their own wastewater treatment plants, so their wastewater is treated by NTMWD. NTMWD currently has the largest wastewater reuse program in the state. NTMWD has water rights allowing reuse of up to 71,882 acre-feet per year (64 MGD) of treated wastewater discharges from the Wilson Creek Wastewater Treatment Plant for municipal purposes. In addition, NTMWD has also developed the East Fork Water Reuse Project which can divert treated wastewater discharges by NTMWD and purchased wastewater return flows from TRA via Main Stem Pump Station. NTMWD also provides treated effluent from its wastewater treatment plants available for direct reuse for landscape irrigation and industrial use.

Member Cities and Customers who own and operate their own wastewater treatment plants must reuse treated effluent for irrigation purposes at their plant site. These entities must also seek other alternatives for reuse of recycled wastewater effluent.



F. YEAR-ROUND OUTDOOR WATERING SCHEDULES

A mandatory weekly watering schedule has been gradually gaining acceptance in the region and the state. NTMWD requires all Member Cities and Customers to adhere to a permanent outdoor watering schedule. Although the frequency is specified, the schedule itself is left up to the Member Cities and Customers to designate. Some entities utilize "day of the week" irrigation schedules where watering is based on either even/odd address numbers, trash/recycling pick-up days, or geographic areas related to distribution pressure zones.

- Summer (April 1 October 31) Spray irrigation with sprinklers or irrigation systems at each service address must be limited to no more than two days per week.
 Additionally, prohibit lawn irrigation watering from 10 a.m. to 6 p.m. Education should be provided that irrigation should only be used when needed, which is often less than twice per week, even in the heat of summer.
- Winter (November 1 March 31) Spray irrigation with sprinklers or irrigation systems at each service address must be limited to no more than *one day per week* with education that less than once per week (or not at all) is usually adequate.

Additional irrigation may be provided by hand-held hose with shutoff nozzle, use of dedicated irrigation drip zones, and/or soaker hose provided no runoff occurs. Many North Texas horticulturists have endorsed twice-weekly watering as more than sufficient for landscapes in the region, even in the heat of summer. This measure can be improved with the inclusion of the voluntary ET-based weekly watering advice/recommendations (Section 8.04) because landscapes frequently need less watering than the year-round watering schedule allows or affords. Additionally, Member Cities and Customers should also consider review of their existing requirements and updating any codes that may impede or limit the implementation of the year-round outdoor watering schedules or other water conservation measures.

G. TIME OF DAY WATERING SCHEDULE

NTMWD requires that during the summer months (April 1 – October 31) under normal conditions, spray irrigation with an irrigation system or sprinkler is only permitted on authorized watering days, before 10 a.m. or after 6 p.m. The primary purpose of this measure is to reduce wind drift and evaporation losses during the active growing season. The time-of-day watering schedule requirement increases watering efficiency by eliminating outdoor irrigation use when climatic factors negatively impact irrigation system efficiencies. Midday irrigation is not an optimal time to irrigate because evapotranspiration rates are higher, and plants are more susceptible to stress associated with factors such as higher temperatures and lower relative humidity.



H. IRRIGATION SYSTEM REQUIREMENTS FOR NEW AND COMMERCIAL SYSTEMS

In 2007, the 80th Texas Legislature passed House Bill 1656, Senate Bill 3, and House Bill 4 related to regulating irrigation systems and irrigators by adopting minimum standards and specifications for designing, installing, and operating irrigation systems. The Texas legislation required cities with a population over 20,000 to develop a landscape irrigation program that includes permitting, inspection, and enforcement of water conservation for new irrigation systems. The landscape irrigation rules must have been adopted to comply with the January 1, 2009, effective date.

NTMWD **requires** all Member Cities and Customers to adhere to a minimum set of irrigation standards:

- 1) Require that all new irrigation systems be in compliance with state design and installation regulations (Texas Administrative Code Title 30, Chapter 344).
- 2) Require operational rain and freeze sensors and/or ET or Smart controllers on all new irrigation systems. Rain and freeze sensors and/or ET or Smart controllers must be properly maintained to function properly.
- 3) Require that irrigation systems be inspected at the same time as initial backflow preventer inspection.
- 4) Require the owner of a regulated irrigation property obtain an evaluation of any permanently installed irrigation system on a periodic basis to be defined by the Member City or Customer. The irrigation evaluation shall be conducted by a licensed irrigator in the State of Texas and be submitted to the local water provider (i.e., city, water supply corporation).

There are many standards above the minimum state and NTMWD requirements that any entity can adopt. These measures are optional and discussed in more detail in **Section 8.04**.

I. WATER WASTE PROVISIONS

NTMWD requires all Member Cities and Customers prohibit activities that waste water. The main purpose of a water waste ordinance is to provide for a means to enforce that water waste is prevented during lawn and landscape irrigation, that water resources are conserved for their most beneficial and vital uses, and that public health is protected. It provides a defined enforcement mechanism for exceptional neglect related to the proper maintenance and efficient use of water fixtures, pipes, and irrigation systems. The ordinance can provide additional assistance or enforcement actions if no corrective action has been taken after a certain number of correspondences.

NTMWD requires that the following water waste ordinance offenses include:



- 1) The use of irrigation systems that water impervious surfaces. (Wind-driven water drift will be taken into consideration.)
- 2) Outdoor watering during precipitation or freeze events.
- 3) The use of poorly maintained sprinkler systems that waste water.
- 4) Excess water runoff or other obvious waste.
- 5) Overseeding, sodding, sprigging, broadcasting or plugging with cool season grasses or watering cool season grasses, except for golf courses and athletic fields.
- 6) The use of potable water to fill or refill residential, amenity, and any other natural or manmade ponds. A pond is considered to be a still body of water with a surface area of 500 square feet or more. This does not include recreational swimming pools.
- 7) Non-commercial car washing that does not use a water hose with an automatic shutoff valve
- 8) Hotels and motels that do not offer a linen reuse water conservation option to customers.
- 9) Restaurants, bars, and other commercial food or beverage establishments that provide drinking water to customers unless a specific request is made by the customer for drinking water.

NTMWD does not control how the Member Cities and Customers enforce the water waste ordinance offenses. Entities should determine the best means of enforcement, be it tickets or administrative fees that work best for their community. Implementation of AMI systems may allow water providers to notify customers of potential leaks and support enforcement activities.



8.04 OPTIONAL MEMBER CITY AND CUSTOMER CONSERVATION STRATEGIES

NTMWD also urges its Member Cities and Customers to consider including the following additional water conservation measures in their plans. The following sections describe optional strategies; however, Member Cities and Customers are not limited to the strategies described in this Plan. NTMWD intends for these optional strategies to be used as guidance and allow Member Cities and Customers to have flexibility to modify their own water conservation plans to best fit their community needs and water conservation goals.

These optional strategies are from the North Texas Water Providers Regional Landscape Initiative or the TWDB Best Management Practices Guides.

A. USE OF ET-BASED WEEKLY WATERING ADVICE/RECOMMENDATIONS

NTMWD requires that Member Cities and Customers adhere to a year-round outdoor watering schedule. However, this conservation practice can be improved with the use of ET-based weekly watering advice and recommendations. Landscapes frequently require less watering than the year-round water schedule allows. This measure can be particularly useful for entities with a significant percentage of customers using automated landscape irrigation systems.

Water providers in the Dallas-Fort Worth (DFW) area (including NTMWD) sponsor weather stations to collect daily weather data and provide the most accurate watering recommendations. Many cities in the DFW area can already take advantage of these ET-based recommendations and incorporate them into their water conservation programs, at no cost to the city. Examples of such a service are shown below.

- Water My Yard An online platform where homeowners can sign up to receive weekly watering recommendations based on their location and a few specifications about their sprinkler system. Users can then choose to accept the recommendations by email, text, or both. Recommendations are available for select cities in Collin, Dallas, Denton, Fannin, Hunt, Kaufman, and Rockwall Counties. Sponsored by NTMWD and Texas A&M AgriLife Extension Service (WaterMyYard.org).
- Water Is Awesome Weekly Watering Advice Weekly watering recommendations
 for most of North Texas based on data from weather stations scattered throughout the
 DFW area. The recommendations are distributed by email and text every week and are
 provided in inches of water needed and the number of minutes necessary to apply that
 amount of water for spray, rotor, and multi-stream sprinklers. Advice service is
 available for all of North Central Texas and sponsored by DWU and TRWD.
 (https://waterisawesome.com/weekly-watering-advice).



WaterWise Newsletter and Hotline- The City of Frisco (Frisco) provides weekly lawn watering advice on the city's website and through the WaterWise Newsletter distributed to subscribers every Monday. Frisco also has a "Weekly Watering Advice Hotline" you can into weekly to get this information. Frisco has a weather station that is used to determine how much water is needed each particular week.

Providing evapotranspiration (ET)-based weekly watering recommendations can reduce the amount of water applied for outdoor watering if customers follow the guidance. A drawback with this BMP is the adoption rate. Since these recommendations may change every week, it requires customers to adjust their controllers more often.

It is important to note that at a minimum, Member Cities and Customers must adhere to the year-round outdoor watering schedule set by NTMWD and described in Section 8.03.

B. WATER EFFICIENT LANDSCAPE INITIATIVES

NTMWD recommends that Member Cities and Customers include water efficient landscape initiatives in their water conservation plans. A water efficient landscape is a landscape that is designed and maintained according to basic good horticultural principles that allow for a beautiful healthy landscape with minimal or no supplemental irrigation and no adverse runoff from the landscape property. Water efficient landscapes limit or exclude non-functional turf where possible. Examples of nonfunctional turf include streetscape turf and turf that is purely ornamental. As an alternative to non-functional turf grasses, water efficient landscapes use appropriate plants or other landscaping materials that require little or no supplemental irrigation. Appropriate plants are those selected based on their adaptability to the region's soil and climate. NTMWD's #PledgeToPlantSmart initiative seeks to inspire positive change in water conservation by encouraging North Texas residents to do their part and plant smart by selecting native or adaptive plants for their garden and landscaping. Member Cities and Customers should adopt a native and adaptive recommended plant list for water efficient landscaping. Water efficient landscapes can be an alternative to non-functional turf grasses and may be appropriate for application in new development or retrofits of existing landscapes for both commercial and residential areas.

Water efficient landscape initiatives can be encouraged through financial incentives or required through ordinance. Member Cities and Customers should also consider review of their existing requirements and removal of current codes that may impede or limit the application of water efficient landscapes. Texas Property Code § 202.007 may be a helpful resource for language for removing potential barriers to water efficient landscapes.

In lieu of an ordinance, water efficient landscapes can be encouraged through rebates for landscape conversion or installation or award programs. Good examples of water efficient landscapes should also be encouraged through public outreach, demonstration gardens,



and/or used in public landscapes and rights-of-way. NTMWD has a great example of the implementation of native plants and xeriscaping at the Bois d'Arc Lake Operations Center.

There are several programs available that offer a wealth of information on designing and implementing water efficient landscape.

- Water Wise (http://urbanlandscapeguide.tamu.edu/waterwise.html)
- Texas SmartScape™ (http://www.txsmartscape.com/)
- EARTH-KIND™ (https://aggie-horticulture.tamu.edu/earthkind/publications/#water)

NTMWD recommends, but does not require, implementation of this conservation practice in Member Cities' and Customers' own water conservation plans.

C. ADDITIONAL WATER SAVING MEASURES FOR NEW IRRIGATION SYSTEM REQUIREMENTS

NTMWD requires certain irrigation system requirements for new and commercial systems. However, this conservation practice can be improved with additional water saving measures. As discussed previously, Texas legislation regulates irrigation systems and irrigators by adopting minimum standards and specifications for designing, installing, and operating irrigation systems.

Many cities within Region C have adopted irrigation system standards above the minimum state requirements. Some of these standards include:

- Require property owners that install their irrigation system to also comply with the adopted city ordinance.
- Require submission of the irrigation plan in conjunction with the permit application to the applicable city official/department.
- Require all new irrigation systems to not utilize above-ground spray in landscapes that
 are less than 60 inches in either length or width and which contain impervious
 pedestrian or vehicular traffic surfaces along two or more perimeters. The use of
 subsurface or drip irrigation and pressure compensating tubing is permitted if the
 qualifying area will be irrigated.
- Require all non-turf landscape areas included in the irrigation plan to be designed with subsurface irrigation, drip irrigation, and/or pressure compensating tubing. If the irrigation plan includes a foundation watering system, require a separate zone be dedicated for drip irrigation for the purpose of watering a structure's foundation.
- Require a flow control master valve to be installed on the discharge side of the backflow prevention device on all new installations.



- Require check valves where elevation differences may result in low head drainage. Check valves may be located at the sprinkler head(s) or on the lateral line.
- Require that pop-up heads shall be installed at grade level and operated to extend above all landscape turfgrass.
- Require that all new irrigation systems must include an automatic controller capable of providing the following features:
 - o Multiple irrigation programs with at least three start times per program
 - o Limiting the irrigation frequency to once every 7 days and once every 14 days
 - Water budgeting feature
- Require additional information and description for the required "walk-through". This may include but is not limited to a checklist of things to cover on the "walk-through" with the homeowner or educational leave behind materials.
- Require the signed maintenance checklist be submitted to the applicable city official/department. Require the irrigator's name, license number, company name, telephone number, and the dates of the warranty period to be on the maintenance checklist.
- Require the irrigation plan indicating the actual installation of the system and the associated seasonal watering schedule be submitted to the applicable city official/department.
- Require the irrigation plan and maintenance checklist be transferred from the new home builder to the first home buyer with documentation confirming the transaction provided to the applicable city official/department.

It is important to note that at a minimum, Member Cities and Customers must adhere to the irrigation system requirements set by NTMWD and described in Section 8.03.

D. ADDITIONAL WATER WASTE PROVISIONS

NTMWD requires certain water waste provisions. However, this conservation practice can be improved with the inclusion of additional water waste provisions suited for your entity. As discussed previously, the main purpose of a water waste ordinance is to provide a means for enforcement that water waste is prevented during lawn and landscape irrigation, that water resources are conserved for their most beneficial and vital uses, and that public health is protected. It provides a defined enforcement mechanism for exceptional neglect related to the proper maintenance and efficient use of water fixtures, pipes, and irrigation systems. The



ordinance can provide additional assistance or enforcement actions if no corrective action has been taken after a certain number of correspondences.

NTMWD recommends, but does not require, the following additional water waste ordinance offenses:

- 1) Sprinkler runoff from a property greater than 50 feet.
- 2) Operating an irrigation system or other lawn watering device during any form of precipitation or when temperatures are below 32 degrees Fahrenheit.
- 3) Irrigation to pond in a street or parking lot to a depth greater than 1/4 inch.
- 4) Failure to repair a controllable leak, including but not limited to a broken sprinkler head, a leaking valve, leaking or broken pipes, or a leaking faucet.
- 5) Operating a permanently installed irrigation system with a broken head or a head that is out of adjustment where the arc of the spray head is over a street or parking lot.
- 6) Washing of driveways, sidewalks, parking lots or other impervious surface areas with an open hose or spray nozzle attached to an open hose, except when required to eliminate conditions that threaten public health, safety or welfare.
- 7) Installation of splash pads that use a flow-through system instead of a cycle tank.
 - All splash pads should follow the manufacturer's recommendations and health agency guidance for the operation and management of splash pads and have standard operating procedures that help ensure water quality and promote conservation. Standard operating procedures should be tailored to the type of splash-pad (flow-through or cycle tank). Regardless of splash pad type or configuration, consideration should be given towards conservation efforts. For example, operating hours could be adjusted often based on frequency and duration of public use or the runoff can be diverted to serve a functional purpose, such as maintaining native and adapted vegetation.

It is important to note that at a minimum, Member Cities and Customers must adhere to the water waste provisions set by NTMWD and described in Section 8.03.

E. PARK/ATHLETIC FIELD CONSERVATION

NTMWD recommends that Member Cities and Customers consider the implementation of this conservation practice if there are parks and/or athletic fields within their system that are heavy water users. This conservation practice is intended to address park and athletic field conservation if the water provider manages and/or serves customers with irrigated parks and/or athletic fields. These facilities often face scrutiny by the public for using large amounts



of water or being perceived as using excessive amounts. Athletic field and park irrigation conservation practices and the careful use of water in the operation and maintenance of park facilities can effectively reduce water demands. Once a water provider or customer adopts this practice, it should be followed closely to achieve maximum water efficiency benefits. With the dedication of an athletic field manager, athletic field conservation can effectively reduce system water demand. A manager can implement a watering regimen that only uses the amount of water necessary to maintain the viability of the turf and health of its users.

All park facilities should be metered and water use billed to reinforce the importance of water efficiency. Before developing an efficient watering program, the water provider should consider meeting with park irrigation personnel, management, and authorized landscape manager. This discussion should focus on water conservation issues and developing an adequate scope of action for efficiency. The first key is to understand the performance and capabilities of your irrigation system at these facilities. Requiring automatic irrigation systems and controllers at all facilities is recommended. It is essential to have training in soil management, proper aeration methods, nutrient management, mowing, soil testing, and irrigation management.

Achieving conservation can be voluntary or regulatory, based on the needs of the city. Cities may also consider if there is an opportunity to use reclaimed, reused, or recycled water for parks to conserve potable water. However, specific uses must meet TCEQ water quality standards for reclaimed water and human contact, and they must be appropriate for the particular use of the park. Reclaimed water should be applied based on the appropriate water budget. When developing athletic field conservation practices, identify the various stakeholders, including the school district staff, nonprofit athletic associations, private sports complex managers, and city staff. Meeting with them will help achieve long-term results.

NTMWD recommends but does not require implementation of this conservation practice in Member Cities' and Customers' own water conservation plans.

F. GOLF COURSE CONSERVATION AND REUSE

NTMWD recommends that Member Cities and Customers consider the implementation of this conservation practice if there are golf courses within their system that are heavy water users. Golf courses can use a considerable amount of water for irrigation, especially during the summer. The Environmental Institute for Golf found that from 2003-2005, an 18-hole course in the southeast region of the country (including North Central Texas) applied an average of 29 inches of irrigation water per acre every year. Irrigation of course play areas, such as fairways, is necessary to support healthy turfgrass and landscape plants, which are important for course playability and aesthetics. However, golf courses can employ several practices to reduce water use while maintaining the course's playability and aesthetics. Also, over-watering and overfertilization can negatively impact the water quality in local streams and lakes.



By adopting a conservation plan, golf courses can benefit by:

- Being a good neighbor by conserving local water supplies
- Saving money by reducing water use
- Protecting local water quality
- Maintaining playing conditions on the course
- Increasing irrigation equipment longevity

Water providers may take different golf course conservation approaches: encouraging voluntary efforts by the golf courses to conserve water, making it required as part of a contract, or, if possible, passing an ordinance requiring golf courses to develop and implement a conservation plan. It is important for water providers to work closely with golf courses since they know which practices will have the greatest potential for implementation. The courses may have already completed some best management practices and knowledge which may be effective or not. Water providers should work to coordinate and implement conservation practices on courses that are owned and operated by the local government.

Water conservation and water quality protection measures for golf courses may include, but are not limited to, the following:

Golf Course Landscape Design and Water Sources

- When feasible, use alternative water sources, such as reclaimed or reuse water from wastewater treatment facilities, to supplement or replace potable water sources.
 Monitor reclaimed water tests regularly for salinity. Rainwater harvesting and on-site pond storage are additional alternative water sources to consider.
- Select drought-tolerant turfgrass varieties to minimize water use while maintaining a high-quality playing surface.
- Reduce the number of irrigated acres on the course by converting non-play and rough areas to native grasses and other drought-tolerant plants. These plants will provide an attractive and low-maintenance landscape.
- Reduce water use by limiting the number and/or size of water features that only serve an aesthetic function.
- Develop a drought management plan that can be implemented when water supplies are low enough to enact local drought mitigation efforts.

Irrigation System Design and Maintenance



- Irrigation systems should be properly designed and installed to maximize water use efficiency while reducing operational costs and maintaining a healthy and playable course.
- Utilize new technology, such as soil moisture sensors, evapotranspiration data, and computer-controlled systems that maximize water efficiency by irrigating based on the turfgrass's moisture needs.
- Hand watering greens or other smaller areas will save water compared to running the entire zone in that area.
- Design the irrigation system to ensure that the irrigation water is distributed evenly and efficiently, with a Distribution Uniformity of 80% or better.
- Frequently inspect all sprinkler heads and other components of the irrigation system and make any adjustments or repairs as needed to improve water use efficiency. Conducting a system-wide audit by a licensed irrigation professional annually can help identify inefficiencies in the system.
- Fix leaks in the system immediately.
- Rain sensors can shut off the irrigation system when an adequate amount of rainfall is received.
- Irrigating in the early morning hours before temperatures rise and when wind speeds are low will reduce the amount of water lost to evaporation.
- Use mowing, aeration, nutrients, and soil amendments to improve soil condition and increase water infiltration.

Water Quality Protection

- Obtain a soil test before applying fertilizer to ensure the correct type and amount is used.
- Apply fertilizers and chemicals according to the directions on the label. Do not overapply.
- Do not overwater fertilizers when applying, resulting in runoff that could carry fertilizers into a nearby stream or pond.
- Maintain vegetated buffers at least 15 feet from the edge of a stream or pond to capture pollutants that may runoff from the course.

NTMWD recommends but does not require implementation of this conservation practice in Member Cities' and Customers' own water conservation plans.



G. USE OF LICENSED IRRIGATORS TO INSPECT AND REVIEW ALL IRRIGATION PERMITS AND PLANS

Another potential conservation practice to implement is the requirement of licensed irrigation inspectors to review and inspect all irrigation system plans and installed components before a permit is released. Many cities use licensed plumbing inspectors, as allowed by TCEQ rules, to perform these duties. However, having dedicated licensed irrigation inspectors to implement all aspects of an irrigation system permitting program provides a certain level of focus for complying with water efficiency standards. Reviewing irrigation permits and plans before installing allows for changes to be made to the plans and not after the pipe is already in the ground. This ensures the irrigation system's overall quality promotes irrigation efficiency and quarantees that the system will comply with state and local requirements.

Developing a review and inspection program at the municipal level reduces the chance for unlicensed irrigators to install irrigation systems improperly. Improper installation can waste water, money, cause future maintenance issues, but most importantly, it may contaminate the public water supply. It is crucial to prevent non-potable water in lawn irrigation pipes from flowing into public water supply pipes.

Inspecting the system provides benefits for water conservation. With open-trench inspections, you can check:

- Depth of piping-which protects from freezing temperatures.
- Potential invasion of plant/shrubbery roots.
- Joints are glued appropriately, and no leaks occur.
- Pipe size-to eliminate water hammer.
- Pressure management requirements.
- The overall layout of the system.

Staff can hold an irrigator's license and inspector's license, but to prevent them from installing and inspecting their work, staff cannot have both running concurrently. In 2011, the 82nd Texas Legislature passed House Bill 2507, making it a Class C misdemeanor for an individual to operate as an irrigator in the state of Texas without a valid irrigation license. Therefore, effective September 1, 2011, individuals operating without a license are in direct violation of the Texas Occupational Code, Sec. 1903.256.

According to the Texas Administrative Code, upon completion of the irrigation system, four items must be completed to inform and educate the owner of the system: a final walk-through, a maintenance checklist, licensed irrigator contact information, and an as-built plan. All irrigation system plans, installation, and review requirements must be followed for long-term



water efficiency. Minimum state requirements for landscape irrigation can be found in Title 30, Chapter 344 of the Texas Administrative Code.

NTMWD recommends but does not require implementation of this conservation practice in Member Cities' and Customers' own water conservation plans.

H. OFFER FREE OR DISCOUNTED IRRIGATION SYSTEM CHECK-UPS FOR RESIDENTIAL **CUSTOMERS**

EPA estimates that up to 70% of the total water used during the summer months is applied as outdoor irrigation. As much as 50% of the water used outdoors is wasted due to overwatering and inefficient or malfunctioning irrigation system components. Irrigation system check-ups (also known as evaluations or audits) for residential customers, is a tool that cities can employ to reduce outdoor watering demand. Check-ups are typically offered at no charge to homeowners. A licensed irrigator will evaluate the irrigation system components and controller settings during a typical check-up to see if the irrigation system can operate more efficiently and identify needed repairs or adjustments. The licensed irrigator will run the irrigation system to see if the sprinkler heads function correctly and apply water only to the intended areas. The licensed irrigator will check the irrigation system's pressure and discuss the controller settings with the homeowner to advise them on the most efficient watering methods.

One valuable aspect of check-ups is the one-on-one assistance and education that a residential customer receives on properly managing the irrigation system. This education can result in long-term water savings because the customer has a better understanding about the system. Water savings may last for multiple years after the evaluation is completed, mainly due to more efficient watering habits. As part of the check-up, the licensed irrigator will identify inefficiencies in the resident's irrigation system and educate them on programming the irrigation controller for more efficient watering practices, such as seasonal adjustment settings and 'Cycle and Soak.' The sponsoring water provider or city can also offer handouts, brochures, and other educational information to residents. The licensed irrigator can provide a report to the residential customer detailing equipment problems and offer recommendations to change watering habits. Reports can include an estimated water savings amount based on recommended adjustments to the controller run times. The licensed irrigator should also provide a copy of the report to the sponsoring water provider or city.

Benefits of check-ups include one-on-one contact with residential customers, providing educational information that may result in greater water savings than irrigation system fixes alone. Check-ups are an excellent customer service tool when managing residents' complaints. When using check-ups, cities can be selective by targeting high water users or those with large lots to maximize budget and water savings. Water providers or cities should consider conducting a customer satisfaction survey after the check-up is completed to determine how



many residents have implemented recommended modifications and gauge satisfaction with the check-up program.

NTMWD recommends but does not require implementation of this conservation practice in Member Cities' and Customers' own water conservation plans.

I. REBATES

NTMWD recommends that Member Cities and Customers consider offering a rebate program as a conservation practice to be included as part of their water conservation plan. As the population increases in the North Texas region, the demand for water grows, especially because many newer cities require irrigation systems in new developments.

Creating a program that encourages residents to become educated on their irrigation system can improve operation and efficiency. Furthermore, when it comes to the type of irrigation system and standard efficiencies, the Texas AgriLife Research and Extension Urban Solutions Center provides the following average efficiencies by system type:

- Surface/Subsurface drip 90%
- Surface micro drip irrigation 85%
- Large Rotors 70%
- Small Rotors 65%
- Spray Heads 50%

This conservation practice of a rebate program provides, in conjunction with a sprinkler evaluation (check-up) program, an incentive to have an evaluation done and make recommended changes. With such a substantial opportunity for efficiency gains, some entities may wish to consider offering rebates to both residential and commercial customers for upgrading their current irrigation systems. By changing out less efficient equipment, this conservation practice intends to increase the irrigation efficiency by 10% or more. With 31% of all residential water use statewide attributed to irrigation, and most of that conducted using spray heads with an average efficiency of 50%, there is a real benefit for developing a rebate program for irrigation systems.

Although rebates for irrigation systems can have large impacts, there are also several other water conservation incentive programs that can be implemented. Other examples include:

- Commercial clothes washer rebates for the purchase and installation of high efficiency card- or coin-operated commercial clothes washers.
- Low-flow toilet replacement and rebate programs.



- Rebates for rain/freeze sensors and/or ET or Smart controllers.
- Low-flow showerhead and sink aerators replacement programs or rebates.
- Residential water efficient clothes washer rebates.
- Pressure reducing valve installation programs or rebates.
- Rain barrel rebates.
- Pool cover rebates.
- On-demand hot water heater rebates.
- Other water conservation incentive programs

NTMWD recommends but does not require implementation of this conservation practice in Member Cities' and Customers' own water conservation plans.

J. ICIM RECOMMENDATIONS

NTMWD has partnered with Plummer Associates, Inc. to develop the ICIM program that focuses on identifying areas where additional ICIM water savings can be achieved. Member Cities and Customers can adopt a similar approach by implementing the following conservation practices:

- Classification of Customers by Specific End Use A billing system that identifies customers by criteria specific enough to assess usage patterns can greatly assist in reviewing drivers of demand and developing targeted conservation efforts. For example, rather than identify customers as residential, commercial, industrial, or institutional, which is very broad, utilities can classify customers by specific end uses such as Veterinary Hospitals, Full-Service Hotels, or Day Care Centers.
- End Use Analysis To determine what water conservation and efficiency programs and policies will be most effective in managing demand, a water utility needs to understand the makeup of its customer base and conduct a thorough assessment of end use water efficiency measures. Understanding what technologies are available, understanding how far along end users are in adopting these new technologies, and understanding the potential impacts to long-term water use trends, allow planners to target the most effective drivers of change.
- Benchmarking As businesses grow, they tend to add more customers and productions. As such, it can be difficult to see the benefit of targeted conservation efforts if you are only looking at the total annual water use. Development of effective and meaningful benchmarking, such as gallons per pound of product, gallons per guest per day, gallons per meal, etc., allows end users to gauge their effectiveness in using



water and energy efficiently by providing measures that are easy to define and allow for comparison amongst piers. Additionally, benchmarking allows end users to gauge the effectiveness of their efforts year over year.

Providing Water Efficiency Opportunity Surveys for ICIM Customers - A detailed water efficiency survey can enable end users to understand how they use water, develop a complete inventory of water using equipment and processes, identify potential leaks and losses, set realistic reduction goals, identify and implement useful policies, identify low cost/no cost projects and assess potential investments in significant projects aimed at reducing long-term water demand. Members can reach out to NTMWD to participate in the ongoing Water Efficiency Opportunity Surveys.

NTMWD recommends but does not require implementation of this conservation practice in Member Cities' and Customers' own water conservation plans. NTMWD recommends that all Member Cities and Customers participate in the ICIM program and take advantage of the Water Efficiency Opportunity Surveys.

K. WATER EFFICIENCY OUTREACH PROGRAM

NTMWD provides a wealth of technical assistance and outreach. Wholesale and retail water providers benefit from a consistent water conservation message across multiple cities and can enhance their reputation in the community. Utilizing resources and programs from NTMWD's conservation portal allows Member Cities and Customers to save money by not producing the resources or operating the programs themselves and amplifies a common message. Outreach assistance from NTMWD accomplishes public outreach and education elements in both the wholesale and retail water providers' respective water conservation plans.

However, it is recommended that each Member City and Customer develop their own water efficiency outreach program as well. Perhaps one of the most important actions a utility can take in increasing water use efficiency among its customers is through public education and outreach programs (E&O). The goal of E&O programs is to influence behavioral change for short- and long-term water savings. Regular and consistent messaging in customer education will provide an overall picture of water resources in the community. Communicating the need for conservation helps manage existing water supplies and avoids or delays the need for expanded or new infrastructure to meet increased water demands. Customer education also provides valuable information on specific actions they can take in their home or business to meet these community goals while also benefiting from them personally (i.e., managing their water bill).

Each utility should develop an education and outreach plan suited to their community that is adaptable over time. Understanding which messages need to be conveyed regularly and identifying the target audience(s) is key to a successful program. An effective public education



program will help develop trust between the community and the utility as relevant, timely, and fact-based information is provided, and customer service is enhanced.

Many cities have dedicated water conservation web pages located within the main city or utility website with tips and other resources. TWDB is one source that provides publications and other materials that can be placed online or made available in city/utility buildings. NTMWD's online conservation portal is another. The various education and outreach tools also allow cities to promote other programs offered, such as rebates or events, and to communicate other important messages, such as drought conditions or water service outages.

Some customers prefer to gain information through a classroom setting or tour facilities or demonstration areas to better understand certain conservation techniques. Offering in-person or virtual classes or workshops provides an opportunity to connect with these customers, provides hands-on experience, and allows for questions on a range of conservation issues to be answered. NTMWD offers several programs such as these as described in Section 8.02.

NTMWD recommends but does not require implementation of this conservation practice in Member Cities' and Customers' own water conservation plans



APPENDIX A

List of References



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APPENDIX A

LIST OF REFERENCES

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APPENDIX B

TCEQ Rules on Water Conservation Plans for Municipal Uses by Public Water Suppliers and Wholesale Water Suppliers



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A water conservation plan is defined as "[a] strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document." Recognizing the need for efficient use of existing water supplies, TCEQ has developed guidelines and requirements governing the development of water conservation and drought contingency plans. NTMWD is both a wholesale water supplier as well as a retail water provider and must meet both requirements.

TCEQ Conservation Plan Requirements for a Wholesale Water Supplier

TCEQ rules governing development of water conservation plans for wholesale water suppliers are contained in Title 30, Chapter 288, Subchapter A, Rule 288.5 of the Texas Administrative Code. The water conservation plan elements required by TCEQ water conservation rules for wholesale suppliers that are addressed in this Plan are listed below.

Minimum Conservation Plan Requirements for Wholesale Water Suppliers

NTMWD is a wholesale water supplier to Member Cities and Customers in North Central Texas (NTMWD's customers include cities, water supply corporations, and utility districts). The minimum requirements in the Texas Administrative Code for water conservation plans for wholesale water suppliers are covered in this Plan as follows:

- 288.5(1)(A) Description of Service Area Section 2.0
- 288.5(1)(B) Specific, Quantified Goals Section 3.0
- 288.5(1)(C) Measure and Account for Water Diverted Section 4.0
- 288.5(1)(D) Monitoring and Record Management Program Section 4.0
- 288.5(1)(E) Program of Metering and Leak Detection and Repair Section 4.0
- 288.5(1)(F) Requirement for Water Conservation Plans by Wholesale Customers Section 5.0
- 288.5(1)(G) Reservoir System Operation Plan Section 6.0
- 288.5(1)(H) Means of Implementation and Enforcement Section 7.0
- 288.5(1)(I) Documentation of Coordination with Regional Water Planning Group Section 7.0
- 288.5(3) Review and Update of Plan Section 7.0



Texas Administrative Code 288.7(a) imposes additional requirements for water conservation plans submitted with a water right application for new or additional state water. NTMWD has met this requirement for current water right applications for new or additional state water with its previous conservation plan. If the District should seek a new water right, this 2024 Water Conservation Plan would need to be supplemented to address these requirements.

Additional Conservation Strategies

The Texas Administrative Code lists additional water conservation strategies that can be adopted by a wholesale supplier but are not required. Additional strategies adopted by NTMWD include the following:

- 288.5(2)(A) Conservation-oriented Water Rates Section 8.03
- 288.5(2)(C) Program for Reuse and/or Recycling Section 8.01
- 288.5(2)(D) Other Measures Section 8.0

TCEQ Conservation Plan Requirements for a Public Water Supplier

In addition to serving as a wholesale water supplier, NTMWD is also a public water supplier of potable water, providing direct retail service to several customers who do not have access to retail service from other sources. TCEQ has established rules for the development of water conservation plans for public water suppliers that provide retail services. The rules for water conservation plans for municipal uses by public water suppliers are contained in Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.2 of the Texas Administrative Code.

Minimum Conservation Plan Requirements for Public Water Suppliers

TCEQ's minimum requirements for water conservation plans for municipal uses by public water suppliers are addressed below:

- 288.2(a)(1)(A) Utility Profile –Section 2.0
- 288.2(a)(1)(B) Record Management System Section 4.0
- 288.2(a)(1)(C) Specific, Quantifiable Goals Section 3.0
- 288.2(a)(1)(D) Metering of Diversions –Section 4.0
- 288.2(a)(1)(E) Universal Metering Section 4.0
- 288.2(a)(1)(F) Measures to Determine and Control Water Loss Section 4.0
- 288.2(a)(1)(G) Program of Continuing Public Education and Information Section 8.0
- 288.2(a)(1)(H) Non-Promotional Rate Structure Section 8.0



- 288.2(a)(1)(I) Reservoir System Operation Plan Section 6.0
- 288.2(a)(1)(J) Means of Implementation and Enforcement Section 7.0
- 288.2(a)(1)(K) Documentation of Coordination with Regional Water Planning Groups
 Section 7.0
- 288.2(c) Review and Update of Plan Section 7.0

Additional Requirements for Suppliers Serving a Current Population of 5,000 or More

TCEQ has additional requirements for water conservation plans for public water suppliers serving more than 5,000 people. Including its wholesale customers, NTMWD serves more than 5,000 people. Those additional TCEQ requirements are addressed below:

- 288.2(a)(2)(A) Program of Leak Detection, Repair, and Water Loss Accounting Section 4.0
- 288.2(a)(2)(B) Requirement for Water Conservation Plans by Wholesale Customers
 Section 5.0

Additional Conservation Strategies

TCEQ also lists additional water conservation strategies which may be implemented by a public water supplier but are not required. This water conservation plan includes several of those strategies:

288.2(a)(3) – Additional Conservation Strategies – Section 8.0



TITLE 30 ENVIRONMENTAL QUALITY

PART 1 TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CHAPTER 288 WATER CONSERVATION PLANS, DROUGHT CONTINGENCY

PLANS, GUIDELINES AND REQUIREMENTS

SUBCHAPTER A WATER CONSERVATION PLANS

RULE §288.1 Definitions

The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise.

- (1) Agricultural or Agriculture--Any of the following activities:
- (A) cultivating the soil to produce crops for human food, animal feed, or planting seed or for the production of fibers;
- (B) the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or non-soil media by a nursery grower;
- (C) raising, feeding, or keeping animals for breeding purposes or for the production of food or fiber, leather, pelts, or other tangible products having a commercial value;
 - (D) raising or keeping equine animals;
 - (E) wildlife management; and
- (F) planting cover crops, including cover crops cultivated for transplantation, or leaving land idle for the purpose of participating in any governmental program or normal crop or livestock rotation procedure.
- (2) Agricultural use--Any use or activity involving agriculture, including irrigation.
- (3) Best management practices--Voluntary efficiency measures that save a quantifiable amount of water, either directly or indirectly, and that can be implemented within a specific time frame.
- (4) 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 water supply is made available for future or alternative uses.



- (5) Commercial use--The use of water by a place of business, such as a hotel, restaurant, or office building. This does not include multifamily residences or agricultural, industrial, or institutional users.
- (6) Drought contingency plan--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. A drought contingency plan may be a separate document identified as such or may be contained within another water management document(s).
- (7) Industrial use--The use of water in processes designed to convert materials of a lower order of value into forms having greater usability and commercial value, and the development of power by means other than hydroelectric, but does not include agricultural use.
- (8) Institutional use--The use of water by an establishment dedicated to public service, such as a school, university, church, hospital, nursing home, prison or government facility. All facilities dedicated to public service are considered institutional regardless of ownership.
- (9) Irrigation—The agricultural use of water for the irrigation of crops, trees, and pastureland, including, but not limited to, golf courses and parks which do not receive water from a public water supplier.
- (10) Irrigation water use efficiency—The percentage of that amount of irrigation water which is beneficially used by agriculture crops or other vegetation relative to the amount of water diverted from the source(s) of supply. Beneficial uses of water for irrigation purposes include, but are not limited to, evapotranspiration needs for vegetative maintenance and growth, salinity management, and leaching requirements associated with irrigation.
- (11) Mining use--The use of water for mining processes including hydraulic use, drilling, washing sand and gravel, and oil field re-pressuring.
- (12) Municipal use--The use of potable water provided by a public water supplier as well as the use of sewage effluent for residential, commercial, industrial, agricultural, institutional, and wholesale uses.
- (13) Nursery grower--A person engaged in the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or nonsoil media, who grows more than 50% of the products that the person either sells or leases, regardless of the variety sold, leased, or grown. For the purpose of this definition, grow means the actual cultivation or propagation of the product beyond the mere holding or maintaining of the item prior to sale or lease, and typically includes activities associated with the production or multiplying of stock such as the development of new plants from cuttings, grafts, plugs, or seedlings.



- (14) Pollution--The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to the public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.
- (15) Public water supplier--An individual or entity that supplies water to the public for human consumption.
- (16) Regional water planning group--A group established by the Texas Water Development Board to prepare a regional water plan under Texas Water Code, §16.053.
- (17) Residential gallons per capita per day--The total gallons sold for residential use by a public water supplier divided by the residential population served and then divided by the number of days in the year.
- (18) Residential use--The use of water that is billed to single and multifamily residences, which applies to indoor and outdoor uses.
- (19) Retail public water supplier--An individual or entity that for compensation supplies water to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants when that water is not resold to or used by others.
- (20) Reuse--The authorized use for one or more beneficial purposes of use of water that remains unconsumed after the water is used for the original purpose of use and before that water is either disposed of or discharged or otherwise allowed to flow into a watercourse, lake, or other body of state-owned water.
- (21) Total use--The volume of raw or potable water provided by a public water supplier to billed customer sectors or nonrevenue uses and the volume lost during conveyance, treatment, or transmission of that water.
- (22) Total gallons per capita per day (GPCD)—The total amount of water diverted and/or pumped for potable use divided by the total permanent population divided by the days of the year. Diversion volumes of reuse as defined in this chapter shall be credited against total diversion volumes for the purposes of calculating GPCD for targets and goals.
- (23) Water Conservation Coordinator—The person designated by a retail public water supplier that is responsible for implementing a water conservation plan.
- (24) Water conservation plan--A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the



recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s).

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

(26) Wholesale use--Water sold from one entity or public water supplier to other retail water purveyors for resale to individual customers.

Source Note: The provisions of this §288.1 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective August 15, 2002, 27 TexReg 7146; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective January 10, 2008, 33 TexReg 193; amended to be effective December 6, 2012, 37 TexReg 9515; amended to be effective August 16, 2018, 43 TexReg 5218



TITLE 30

ENVIRONMENTAL QUALITY

PART 1

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CHAPTER 288

WATER CONSERVATION PLANS, DROUGHT CONTINGENCY

PLANS, GUIDELINES AND REQUIREMENTS

SUBCHAPTER A

WATER CONSERVATION PLANS

RULE §288.2

Water Conservation Plans for Municipal Uses by Public Water

Suppliers

- (a) A water conservation plan for municipal water use by public water suppliers must provide information in response to the following. If the plan does not provide information for each requirement, the public water supplier shall include in the plan an explanation of why the requirement is not applicable.
- (1) Minimum requirements. All water conservation plans for municipal uses by public water suppliers must include the following elements:
- (A) a utility profile in accordance with the Texas Water Use Methodology, including, but not limited to, information regarding population and customer data, water use data (including total gallons per capita per day (GPCD) and residential GPCD), water supply system data, and wastewater system data;
- (B) a record management system which allows for the classification of water sales and uses into the most detailed level of water use data currently available to it, including, if possible, the sectors listed in clauses (i) (vi) of this subparagraph. Any new billing system purchased by a public water supplier must be capable of reporting detailed water use data as described in clauses (i) (vi) of this subparagraph:
 - (i) residential;
 - (I) single family;
 - (II) multifamily;
 - (ii) commercial;



- (iii) institutional;
- (iv) industrial;
- (v) agricultural; and,
- (vi) wholesale.
- (C) specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use in total GPCD and residential GPCD. The goals established by a public water supplier under this subparagraph are not enforceable;
- (D) metering device(s), within an accuracy of plus or minus 5.0% in order to measure and account for the amount of water diverted from the source of supply;
- (E) a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement;
- (F) measures to determine and control water loss (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections; abandoned services; etc.);
 - (G) a program of continuing public education and information regarding water conservation;
- (H) a water rate structure which is not "promotional," i.e., a rate structure which is costbased and which does not encourage the excessive use of water;
- (I) a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin in order to optimize available water supplies; and
 - (J) a means of implementation and enforcement which shall be evidenced by:
- (i) a copy of the ordinance, resolution, or tariff indicating official adoption of the water conservation plan by the water supplier; and
- (ii) a description of the authority by which the water supplier will implement and enforce the conservation plan; and
- (K) documentation of coordination with the regional water planning groups for the service area of the public water supplier in order to ensure consistency with the appropriate approved regional water plans.



- (2) Additional content requirements. Water conservation plans for municipal uses by public drinking water suppliers serving a current population of 5,000 or more and/or a projected population of 5,000 or more within the next ten years subsequent to the effective date of the plan must include the following elements:
- (A) a program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system;
- (B) a requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in this chapter. If the customer intends to resell the water, the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of this chapter.
- (3) Additional conservation strategies. Any combination of the following strategies shall be selected by the water supplier, in addition to the minimum requirements in paragraphs (1) and (2) of this subsection, if they are necessary to achieve the stated water conservation goals of the plan. The commission may require that any of the following strategies be implemented by the water supplier if the commission determines that the strategy is necessary to achieve the goals of the water conservation plan:
- (A) conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;
- (B) adoption of ordinances, plumbing codes, and/or rules requiring water-conserving plumbing fixtures to be installed in new structures and existing structures undergoing substantial modification or addition;



- (C) a program for the replacement or retrofit of water-conserving plumbing fixtures in existing structures;
 - (D) reuse and/or recycling of wastewater and/or graywater;

with the regional water planning group.

- (E) a program for pressure control and/or reduction in the distribution system and/or for customer connections;
 - (F) a program and/or ordinance(s) for landscape water management;
- (G) a method for monitoring the effectiveness and efficiency of the water conservation plan; and
- (H) any other water conservation practice, method, or technique which the water supplier shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

 (b) A water conservation plan prepared in accordance with 31 TAC §363.15 (relating to Required Water Conservation Plan) of the Texas Water Development Board and substantially meeting the requirements of this section and other applicable commission rules may be submitted to meet application requirements in accordance with a memorandum of understanding between the commission and the Texas Water Development Board.

 (c) A public water supplier for municipal use shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. The public water supplier for municipal use shall review and update the next revision of its water conservation plan every five years to coincide

Source Note: The provisions of this §288.2 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective December 6, 2012, 37 TexReg 9515



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CHAPTER 288 WATER CONSERVATION PLANS, DROUGHT CONTINGENCY

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SUBCHAPTER A WATER CONSERVATION PLANS

RULE §288.5 Water Conservation Plans for Wholesale Water Suppliers

A water conservation plan for a wholesale water supplier must provide information in response to each of the following paragraphs. If the plan does not provide information for each requirement, the wholesale water supplier shall include in the plan an explanation of why the requirement is not applicable.

- (1) Minimum requirements. All water conservation plans for wholesale water suppliers must include the following elements:
- (A) a description of the wholesaler's service area, including population and customer data, water use data, water supply system data, and wastewater data;
- (B) specific, quantified five-year and ten-year targets for water savings including, where appropriate, target goals for municipal use in gallons per capita per day for the wholesaler's service area, maximum acceptable water loss, and the basis for the development of these goals. The goals established by wholesale water suppliers under this subparagraph are not enforceable;
- (C) a description as to which practice(s) and/or device(s) will be utilized to measure and account for the amount of water diverted from the source(s) of supply;
- (D) a monitoring and record management program for determining water deliveries, sales, and losses;
- (E) a program of metering and leak detection and repair for the wholesaler's water storage, delivery, and distribution system;
- (F) a requirement in every water supply contract entered into or renewed after official adoption of the water conservation plan, and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements of this chapter. If the customer intends to resell the water, then the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with applicable provisions of this chapter;



- (G) a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin. The reservoir systems operations plans shall include optimization of water supplies as one of the significant goals of the plan;
- (H) a means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating official adoption of the water conservation plan by the water supplier; and a description of the authority by which the water supplier will implement and enforce the conservation plan; and
- (I) documentation of coordination with the regional water planning groups for the service area of the wholesale water supplier in order to ensure consistency with the appropriate approved regional water plans.
- (2) Additional conservation strategies. Any combination of the following strategies shall be selected by the water wholesaler, in addition to the minimum requirements of paragraph (1) of this section, if they are necessary in order to achieve the stated water conservation goals of the plan. The commission may require by commission order that any of the following strategies be implemented by the water supplier if the commission determines that the strategies are necessary in order for the conservation plan to be achieved:
- (A) conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;
- (B) a program to assist agricultural customers in the development of conservation pollution prevention and abatement plans;
 - (C) a program for reuse and/or recycling of wastewater and/or graywater; and
- (D) any other water conservation practice, method, or technique which the wholesaler shows to be appropriate for achieving the stated goal or goals of the water conservation plan.
- (3) Review and update requirements. The wholesale water supplier shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. A wholesale water supplier shall review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

Source Note: The provisions of this §288.5 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective December 6, 2012, 37 TexReg 9515



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APPENDIX C

Texas Water Code Section 11.039



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TEXAS WATER CODE SECTION 11.039

§ 11.039. DISTRIBUTION OF WATER DURING SHORTAGE.

- (a) If a shortage of water in a water supply not covered by a water conservation plan prepared in compliance with Texas Natural Resource Conservation Commission or Texas Water Development Board rules results from drought, accident, or other cause, the water to be distributed shall be divided among all customers pro rata, according to the amount each may be entitled to, so that preference is given to no one and everyone suffers alike.
- (b) If a shortage of water in a water supply covered by a water conservation plan prepared in compliance with Texas Natural Resource Conservation Commission or Texas Water Development Board rules results from drought, accident, or other cause, the person, association of persons, or corporation owning or controlling the water shall divide the water to be distributed among all customers pro rata, according to:
 - (1) the amount of water to which each customer may be entitled; or
 - (2) the amount of water to which each customer may be entitled, less the amount of water the customer would have saved if the customer had operated its water system in compliance with the water conservation plan.
- (c) Nothing in Subsection (a) or (b) precludes the person, association of persons, or corporation owning or controlling the water from supplying water to a person who has a prior vested right to the water under the laws of this state.

Amended by Acts 1977, 65th Leg., p. 2207, ch. 870, \S 1, eff. Sept. 1, 1977; Acts 2001, 77th Leg., ch. 1126, \S 1, eff. June 15, 2001.



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APPENDIX D

NTMWD Summary and Example Member
City and Customer Annual Water
Conservation Report



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APPENDIX D NTMWD MEMBER CITY AND CUSTOMER WATER CONSERVATION REPORT Due: March 31 of every year

		(中央) (中央) (1977年 - 1977年 -
Contact Information		
Name of System:	NTMWD	
Contact Name:	FNI	
Email Address:		
Telephone Number:	(817) 735-7300	
Year Covered:	2022	
Days in Year	365	
Days III Ical		:
Water System Information		
Estimated Water Service Area Population:	2,009,431	Source: Individual Appendix D Reports
# of Backflow Preventers:	150,751	20000
n at basely restricted	3337533	
Peak Day Usage		
Peak Day (MG)	728.24	Note: this is the sum of peak days for all reporting member cities and customers. Not necessarily concurrent.
Average Day (MG)	324,92	Note: this is the sum of average days for all reporting member cities and customers. Not necessarily concurrent.
Peak/Average Day Rutio	2.24	
Peak Day Raw Water Pumping (MG)	644.87	Note: this is the actual peak day raw water pumping to NTMWD's treatment plants.
Average Day Raw Water Pumping (MG)	342.69	Note: this is the actual average day raw water pumping to NTMWD's treatment plants.
Peak Day Pumping/Average Day	1.88	
		—
Authorized Consumption and Water	Loss	
Total System Input Volume	111,126	Note: this is the total for all reporting member cities and customers.
Billed Metered:	95.021	Note: this is the total for all reporting member cities and customers.
Billed Unmetered (MG):	195.59	Note: this is the total for all reporting member cities and customers. Description: Please see Individual Appendix D Reports for detailed information
Unbilled Metered (MG):	1,149	Note: this is the total for all reporting member cities and customers. Description: Please see Individual Appendix D Reports for detailed information
Unbilled Unmetered (MG):	2,903	Note: this is the total for all reporting member cities and customers. Description: Pieose see Individual Appendix D Reports for detailed information
Total Authorized Consumption:	100,268	Note: this is the total for all reporting member cities and customers.
Water Loss (MG):	10,857	Note: this is the total for all reporting member cities and customers.
Water Loss (gpcd):	15	Note: This is the weighted average for all reporting member cities and customers.
Water Loss (percent):	9.77%	Note: This is the weighted average for all reporting member cities and customers.
	0	
Per Capita Use (Gallons per person p	per day) *	
Total Use (MG)	111,126	Note: this is the total for all reporting member cities and customers.
Residential Use (MG)	65,889	Note: this is the total for all reporting member citles and customers.
Municipal Use (MG)	107,401	Note: this is the total for all reporting member cities and customers.
ICI Use (MG)	18,804	Note: this is the total for all reporting member cities and customers.
Total Per Capita Use (gpcd)	152	Note: This is the weighted average for all reporting member cities and customers.
Residential Per Capita Use (gpcd)	90	Note: This is the weighted average for all reporting member cities and customers.
Municipal Per Capita Use (gpcd)	146	Note: This is the weighted average for all reporting member cities and customers.
ICI Per Capita Use (gpcd)	26	Note: This is the weighted average for all reporting member cities and customers.
Per capita numbers are for direct customers		*************************************

Water Conservation Plan 5- and 10-Year Goals for Water Savings

GPCD with Credit for Reuse Water Loss (Percentage)

	MANGE OF BUILDING STREET					Sales by Cat	egory				
Month	Direct Deliveries from NTMWD	Other Supplies	Residential Single Family	Residential Multi-Family	Public/ Institutional	Commercial	Industrial	Agriculture	Metered Irrigation	Wholesale	Direct Reuse
January	6,347.61	41.64	3,878.84	500.86	123.76	1,063.31	280.98	0.02	362.22	357.95	16.28
February	5,834.81	36.51	3,053.24	488.67	118.28	854.80	310.50	0.01	248.95	321.22	12.86
March	6,952.05	41,82	3,020.88	467.96	115.05	848.94	315.35	0.01	244.40	392.71	7.75
April	8,686.39	39.69	3,586.88	466.96	137.89	881.26	286.08	0.02	407.42	449.69	
May	9,449.42	45.07	4,390.57	470.34	149.86	963.76	321.05	0.04	775.35	550.95	12.86
June	11,367.06	64.75	5,630.53	480.45	186.34	1,087.23	333.13	0.09	1,071.90	723.85	34.14
July	16,810.00	84.23	7,514.84	507.12	231.94	1,227.11	368.92	0.22	1,571.69	1,079.72	46.34
August	14,789.33	64.41	8,521.53	540.68	306.05	1,419.53	373.65	0.13	2,022.85	885,75	98.80
September	11,415.25	61.71	6,591.75	530.86	274.08	1,348.38	380.55	0.05	1,759.69	712.71	93.66
October	11,728.14	53.81	5,940.01	506.70	242.39	1,200.39	259.16	0.14	1,392.12	691.49	47.19
November	7,351.52	39.94	4,291.29	499.35	208.65	1,049.52	264.38	0.02	943.08	430,76	
December	7,238.93	52.11	3,126.48	482.21	131.10	909.74	231.19	0.02	426.84	438.67	9.79
TOTAL	117,970.50	625.68	59,946.85	5,942.16	2,225.40	12,853.97	3,724.95	0.77	11,326.50	7,035.48	
# of Connections (or Units)			560,395	81,227	4,386	30,043	520	9	13,317		45

Historical Water Use for Reporting NTMWD Member Cities and Customers

-	-	0							Metered	Sales by Categ	ory (Million G	iallons)			
Year	Days in Year	Connections	Population Reported by Entities	Deliveries from NTMWD (MG)	Other Supplies (MG)	Residential Single Family	Residential Multi-Family	Public/ Institutional	Commercial	Industrial	Agriculture	Metered Irrigation	Wholesale	Reuse	Total
1990	365	156.830	586,454	39,246	524	21,425		133	11,480	34			264		33,336
1991	365	156,576	600,162	36,719	526	20,139		125	10,682	32			279		31,25
1992	366	157,948	619,873	37,270	607	20,774		136	11,117	35			289		32,35
1993	365	171,229	656,529		869	23,634		154	12,302	39			351		36,481
1994	365	183,821	697,655	41,246	1,139	23,557		155	12,261	39			434		36,445
1995	365	189,669	723,207	46,577	1,359	25,682		171	13,174	43			464		39,534
1996	366	202,068	750,734	49,023	1,598	27,457		194	14,051	49			471		42,222
1997	365	206,050	785,268	51,096	762	28,483		219	14,792	56			S42		44,092
1998	365	231,778	821,441	64,789	1.037	37,544		266	18,001	67			634		56,512
1999	365	262,824	883,270	68,570	658	39,039		278	20,445	254			699		60,716
2000	366	311,139	925,399	74,359	634	43,454		390	21,602	292			1,012		66,749
2001	365	327,171	970,025	76,588	621	43,169		361	21,057	272			1,134		65,995
2002	365	341,370	1,021,726	73,248	494	37,187		519	21,630	383			1,409		61,129
2003	365	359,188	1,073,848		518			968	21,806	631			1,691		69,443
2004	366		1,152,181	76,359	612	42,605	Commission of the Commission o	858	22,094	667			1,119		67,342
2005	365	412,301	1,210,539	88,503	729	51,810		1,437	25,873	894			2,191		82,205
2006	365		1,270,354	90,858	1,026	55,207		1,535	23,734	863			2,432		83,773
2007	365	447,324	1,334,711	75,775	963	43,350		1,603	19,436	1,100			2,477		67,96
2008	366		1,397,488	92,817	885	54,070		2,555	21,669	1,280			2,838		82,41
2009	365		1,410,416	85,687	578	48,903		2,642	19,659	1,219			2,838		75,263
2010	365	477,502	1,439,945	95,399	742	54,435		3,352	21,249	1,294			2,899	- 1	83,230
2011	365	500,666	1,469,951	102,697	754			4,056	21,665	1,769			3,740		93,03
2012	366	512,219	1,478,897	93,748	600	55,771	-	3,634	18,808	1,672			3,246		83,13
2013	365	525,858	1,522,230	87,148	550	52,151		3,223	18,035	1,718			3,094		78,22
2014	365	544,322	1,560,566	78,725	693	46,232		2,931	14,787	2,336			2,989		69,27
2015	365	554,414	1,615,861	90,128	817	52,364		3,926	17,383	2,728			3,524		79,92
2016	366	567,011	1,660,113	93,192	840	50,277		2,760	14,866	3,085		4,283	3,410		78,680
2017	365	590,072	1,721,899	93,637	807	51,734		2,796	15,340	3,257		4,862	3,702		81,69
2018	365	593,004	1,752,165	98,737	993	52,438		2,347	15,385	3,441		6,032	4,532		84,17
2019	365		1,816,697	98,372	928	52,507		2,960	15,114	3,605		5,600	4,768		84,55
2020	366		1,868,010	104,997	523	56,350		2,627	14,976	3,536		6,344	5,042		88,87
2021	365		1,946,846	-	832			1,964	11,537	3,596	1.14	8,303	5,690	405	87,94
2022	365		2,009,431	117,971	626		5,942	2,225	12,854	3,725	0.77	11,326	7,035	435	103,49

Note: After 2020, Residential sales were divided into single and multi-family classifications. Historical information from the TWDB Water Use Surveys were incorporated where available. The category of 'Other' was removed and replaced with 'Reuse'. Historical volumes for 'Other' were redistributed into the appropriate category. These changes were made to be consistent with TWDB terminology.

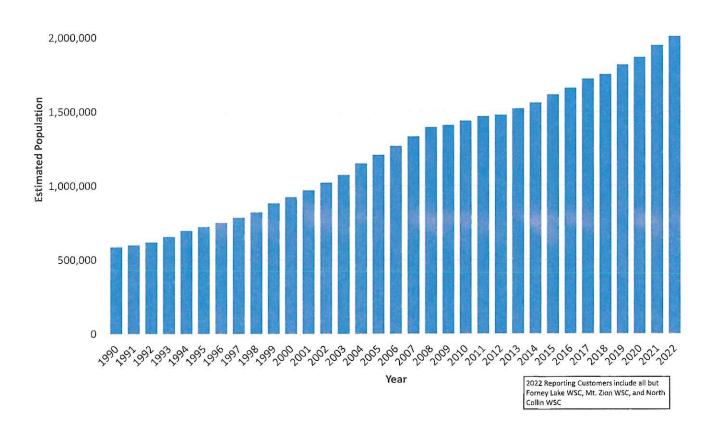
Historical Weighted Average Per Capita Use Data and Water Loss for NTMWD Member Cities and Customers

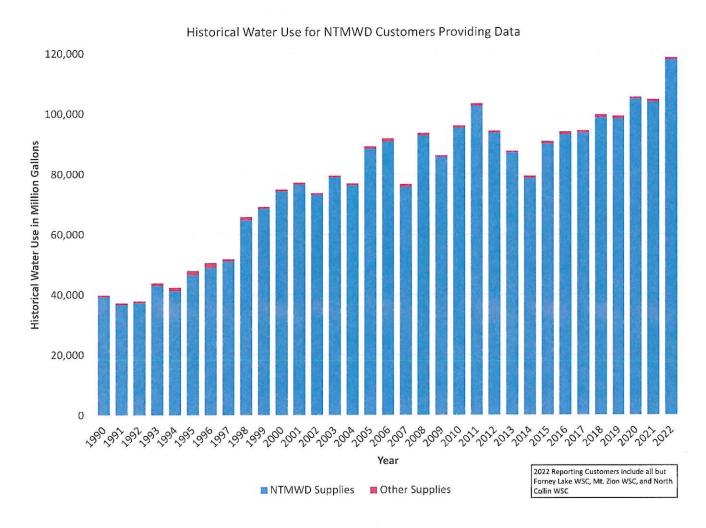
Year	Population Reported by Entities	Deliveries from NTMWD (MG)	% Reuse	Reuse (MG)	in-City Municipal Use (MG)	in-City Municipal Use with Credit for Reuse	Per Capita Municipal Use (gpcd)	Per Capita Municipal Use with Reuse Credit	In-City Residential Use (MG)	Per Capita Residential Use (gpcd)	Other Supplies (MG)	Wholesale Sales (MG)	Billed Metered (MG)	Billed Unmetered (MG)	Unbilled Metered (MG)	Unbilled Unmetered (MG)	Water Losses (MG)	% Water Loss
2000	925,399	74,359	12.69%	9,438	73,521	64,189	218	190	43,454	129	634	1,012	66,749	0	602	557	7,085	9.45%
2001	970,025	76,588	14.04%	10,752	75,635	65,017	214	184	43,169	122	621	1,134	65,995	0	617	577	10,020	12.98%
2002	1,021,726	73,248	14.38%	10,535	71,784	61,460	193	165	37,187	100	494	1,409	61,129	0	636	606	11,372	15.42%
2003	1,073,848	79,032	12.68%	10,019	76,873	67,128	197	171	44,347	113	518	1,691	69,443	0	646	607	8,855	11.13%
2004	1,152,181	76,359	16.04%	12,246	74,901	62,889	179	149	42,605	101	612	1,119	67,175	0	664	718	8,247	10.71%
2005	1,210,539	88,503	12.86%	11,379	85,705	74,685	195	169	51,810	117	729	2,191	82,017	0	689	779	5,559	6.23%
2006	1,270,354	90,858	14.03%	12,749	88,221	75,842	191	164	55,207	119	1,026	2,531	83,969	0	697	870	6,547	7.12%
2007	1,334,711	75,775	19.34%	14,658	72,691	58,629	149	120	43,331	89	963	2,623	68,110	0	807	916	7,055	9.19%
2008	1,397,488	92,817	13.88%	12,882	89,335	76,937	175	150	53,266	104	885	3,023	81,920	0	335	2,013	8,924	9.52%
2009	1,410,416	85,687	26.52%	22,724	81,940	60,209	159	117	47,862	93	578	2,943	74,848	0	80	1,586	9,186	10.65%
2010	1,439,945	95,399	22.96%	21,904	91,601	70,569	174	134	54,392	103	742	3,101	83,006	0	87	1,493	11,299	11.75%
2011	1,469,951	102,697	25.63%	26,321	97,850	72,771	182	136	61,487	115	754	3,740	92,678	0	76	1,465	8,862	8.57%
2012	1,488,911	93,754	25.92%	24,301	89,256	66,121	164	121	55,553	102	677	3,246	82,871	0	101	1,089	10,044	10.64%
2013	1,513,675	87,148	34.06%	29,683	82,661	54,506	150	99	51,886	94	550	3,090	77,920	0	116	828	8,557	9.76%
2014	1,560,566	78,725	32.14%	25,302	73,877	50,133	130	88	46,234	81	693	2,999	69,106	0	112	1,300	8,721	10.98%
2015	1,615,861	90,128	33.18%	29,905	84,374	56,379	143	96	52,364	89	817	3,524	79,724	0	92	1,523	9,380	10.31%
2016	1,660,113	93,192	23.96%	22,329	82,891	63,030	137	104	50,277	83	840	3,410	78,424	0	75	3,510	11,718	12.46%
2017	1,721,899	93,637	31.67%	29,655	87,209	59,590	139	95	51,734	82	807	3,702	77,989	145	763	3,074	8,770	9.67%
2018	1,752,165	98,737	24.77%	24,457	91,474	68,816	143	108	52,438	82	993	4,532	79,643	18	614	2,539	12,384	13.01%
2019		98,372	21.89%	24,367	90,675	70,827	137	107	52,507	79	928	4,768	79,785	35	858	2,540	11,314	11.97%
2020	1,868,010	104,997	25.63%	26,911	96,652	71,880	141	105	56,350	82	523	5,042	83,833	230	1,102	3,692	11,520	11.56%
2021	1,946,846	103,894	24.71%	25,672	95,035	71,552	134	101	56,452	79	832	5,690	81,853	34	1,936	3,015	11,793	11.96%
2022	2.009.431	117.971	26.23%	30,944	107,401	79,230	146	108	65,889	90	626	7,035	96,021	196	1,149	2,903	10,857	9.77%

Note:
In-city municipal use = total water supplied less sales to industry, wholesale sales and other sales.
After 2017 - Unaccounted Water has been removed and replaced with Water Losses (per TWDB definition). This category is inclusive of real and apparent losses. Categories for authorized consumption were also added; Unbilled metered replaced estimated line use, unbilled unmetered replaced estimated line flushing, and a new category for billed unmetered sales was added.

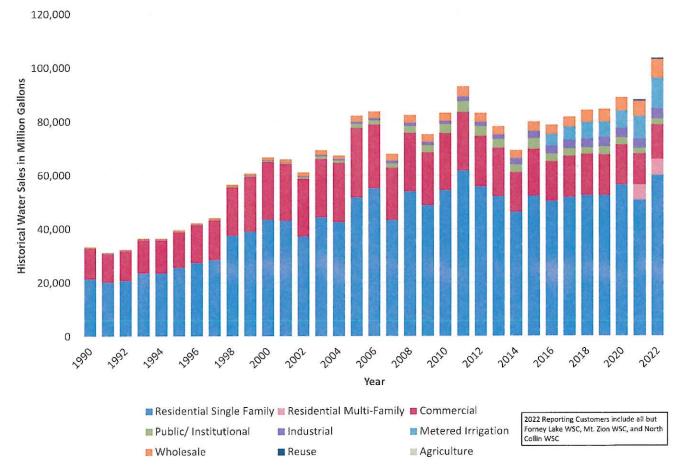
Estimated Historical Population for NTMWD Customers Providing Data for 2000 - 2022

2,500,000

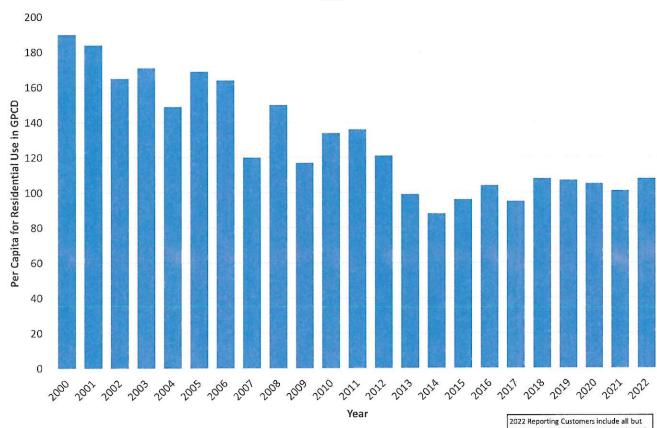




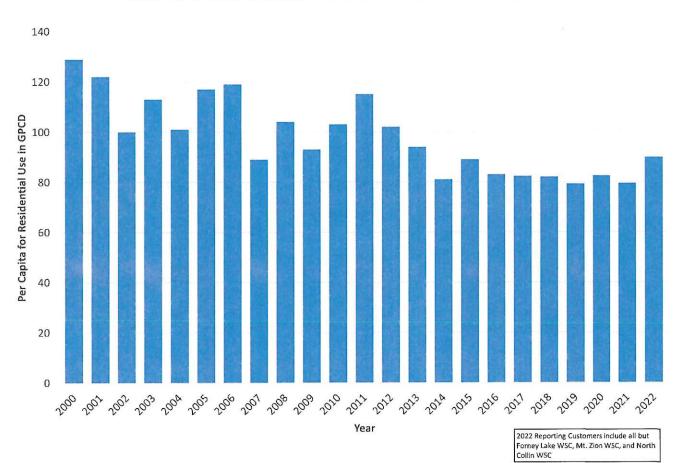
Historical Water Sales by Classification for NTMWD Customers Providing Data



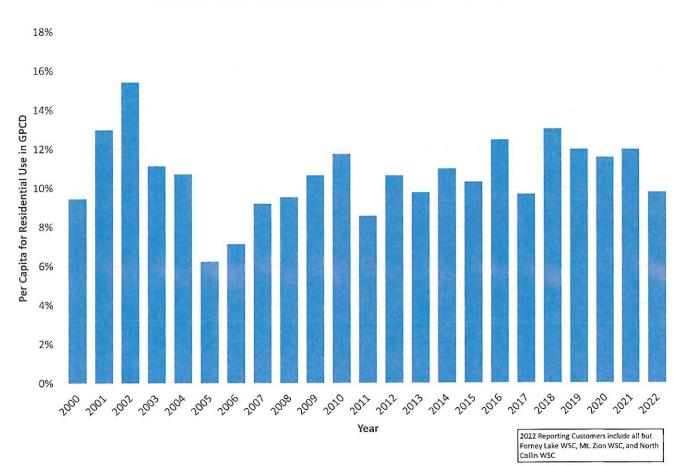
Historical Per Capita Municipal Use with Credit for Reuse for NTMWD Customers Providing
Data



Historical Per Capita Residential Use for NTMWD Customers Providing Data



Historical Percent Water Loss for NTMWD Customers Providing Data



APPENDIX D NTMWD MEMBER CITY AND CUSTOMER WATER CONSERVATION REPORT Due: March 31 of every year

Contact Information TWDB Survey Number: Name of System: PWS ID: Contact Name: Title: Email Address: Telephone Number: Year Covered: Days in Year			
Water System Information Estimated Water Service Area Population: # of Backflow Preventers:		Source:	
Peak Day Usage Delivery Point Peak Day (MG) Average Day (MG) Peak/Average Day Ratio Firm Pumping Capacity (MGD) Storage Volume (MG)	Total System		
Authorized Consumption and Water L Total System Input Volume: Billed Metered: Billed Unmetered (MG): Unbilled Metered (MG): Unbilled Unmetered (MG): Total Authorized Consumption: Water Loss (MG):	055	Description: Description: Description:	
Water Loss (gpcd): Water Loss (percent): Per Capita Use (Gailons per person per Total Use (MG) Residential Use (MG) Municipal Use (MG) ICIM Use (MG) Total Per Capita Use (gpcd) Residential Per Capita Use (gpcd)	or day)		

Water Conservation Plan 5- and 10-Year Goals for Water Savings

	5-Year Goal	10-Year Goal	
Total GPCD			Total GPCD = (Total Gallons in System + Permanent Population) / 365
Residential GPCD			Residential GPCD = (Gallons Used for Residential Use / Residential Population) / 365
Water Loss (GPCD)			Water Loss GPCD = (Total Water Loss / Permanent Population) / 365
Water Loss (Percentage)			Water Loss Percentage = (Total Water Loss / Total Gallons in System) \times 100; or (Water Loss GPCD / Total GPCD) \times 100

Retail Water Metered by Month (in Million Gallons):

	Sales by Category												
Month	Residential Single Family	Residential Multi Family	Public/ Institutional	Commercial	Industrial	Agriculture	Metered Irrigation	Wholesale	Direct Reuse				
January													
February													
March				7. 10011	Postalija io								
April													
May													
June													
July													
August													
September													
October													
November													
December													
TOTAL													
# of Connections (or Units)													

Recorded Supplies from Sources by Month (in Million Gallons):

	Deliveries from	Other Sources	Total Supplies
Month	NTMWD		Total Supplies
January			
February			
March			
April			
May			
June			
July			
August			
September	Superior and the superi		
October			
November			
December	5		
TOTAL			

Recorded Supplies by Delivery Point from NTMWD by Month (in Million Gallons):

		NTMWD Delivery Point	Total System
Month			Total System
January			
February			
March			
March April			
May			
June	of Welming little house like at the		
July			
August			13/1
September	国的 1400 (1500 TO 1500		
October			
November			
December			
TOTAL.			

Wholesale Water Sales to Other Water Systems (in Million Gallons):

	Sale 1	Sale 2	Sale 3	Sale 4	Sale 5	Sale 6	Sale 7	Sale 8	Total
Buyer Name									Wholesale
Type of Water									Sales
Name of Source									Juics
Estimated Water Service Area Population									
January									1
February									
March									
April									
May									
June									
July									
August									
September									
October									
November								- 4	
December									
TOTAL							nea-gr		

Water Sales to Industrial Production Facilities (in Million Gallons):

	Sale 1	Sale 2	Sale 3	Sale 4	Sale 5	Sale 6	Sale 7	Sale 8	Total
Buyer Name									Industrial
Type of Water									Production
Name of Source									Facilities Sales
January									
February									
March									
Aprii									
May									
June									
July									
August									
September									
October									
November									
December					30/342				
TOTAL									

Additional Information
Describe Any ICIM (Industrial, Commercial, Institutional & Multi-Family) Practices being Implemented to Improve Water Efficiency
Describe any Unusual Circumstances
Provide an Update on Progress in Implementation of Conservation Plan
What Conservation Measures are Planned for Next Year?
Do City Limits Differ Significantly from Water Service Area? If so, explain.

there any Assistance Requested from the North Texas Municipal Water District?	
ther?	

Historical Water Use Data for 0

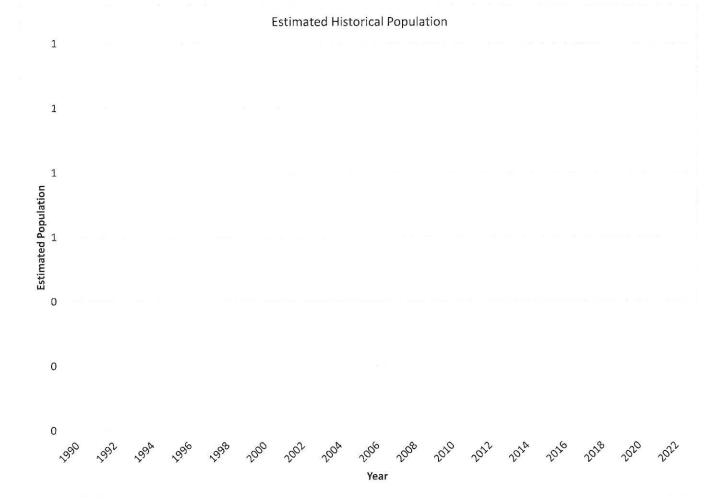
Year	Days in Year			Deliveries from NTMWD (MG)	Other Supplies (MG)	Metered Sales by Category (Million Gallons)											
		Connections	Estimated Population			Residential Single Family	Residential Multi- Family	Public/ Institutional	Commercial	Industrial	Agriculture	Metered Irrigation	Wholesale	Direct Reuse			
1990	365																
1991	365																
1992	366																
1993	365									100							
1994	365											2					
1995	365																
1996	366																
1997	365																
1998	365		-			Į.											
1999	365																
2000	366																
2001	365																
2002	365																
2003	365											V07/25-110-1-010					
2004	366																
2005	365																
2006	365				1												
2007	365																
2008	366																
2009	365																
2010	365																
2011	365																
2012																	
2013																	
2014																	
2015								- 1									
2016																	
2017																	
2018																	
2019																	
2020			-														
2021																	
2022	_																

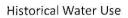
Note: After 2020, Residential sales were divided into single and multi-family classifications. Historical information from the TWDB Water Use Surveys were incorporated where available. The category of 'Other' was removed and replaced with 'Reuse'. Historical volumes for 'Other' were redistributed into the appropriate category when appropriate. These changes were made to be consistent with TWDB terminology.

Historical Per Capita Use Data and Water Loss for 0

		Total Use			Residential Use					Authorized Consumption				Water Loss						
	Estimated Population			Total 10- Year Per Capita Goal	Residential Per Capita Use (gpcd)	Residential 5- Year Per Capita Goal	10-Year Per	Use Use	ICIM Per Capita Use (gpcd)	Billed Metered (MG)	Billed Unmetered (MG)	Unbilled Metered (MG)	Unbilled Unmetered (MG)	Water Loss (MG)	Water Loss (gpcd)	Water Loss 5- Year Per Capita Goal	Water Loss 10- Year Per Capita Goal		Water Loss (percentage) 5 Year Goal	Water Loss (percentage) : Year Goal
1990				-		2														
1991																				
1992			December 1						8											
1993																				
1994																				
1995					THE RESERVE															
1996		- 7							Profit Sant											
1997																				
1998																				
1999				-														77		
2000						1			-											
2001																				
2002																				
2003										1										
2004																				
7005		-				1			The State of the S						1000				Source Dispersion	i de la composición dela composición de la composición dela composición de la composición de la composición dela composición dela composición de la composición de la composición dela composición de la composición dela composición dela composición
2006																				
2007																				
2008																				- 1/1 - 2 - 1/2
2009						-													National Property	
2010																10,00				
2011																				
2012																				
2013			-			1									1,000					No.
2014						-		-	9-11115-1-1											
2015								-												
2016																				
2017		*****	-			1														
2018												-								
2019				-		1				1				The same of the sa						
2020				-														i		
2020						-				-							1			
2021			-			-		_		-			-							

Note:
In-city municipal use = total water supplied less sales to industry, wholesale sales and other sales.
After 2017 - Unaccounted Water has been removed and replaced with Water Losses (per IWOB definition). This category is inclusive of real and apparent losses. Categories for authorized consumption were also added; Until filed metered replaced estimated fire use, unbilled unmetered replaced estimated fire use, unbilled unmetered replaced estimated fire use.



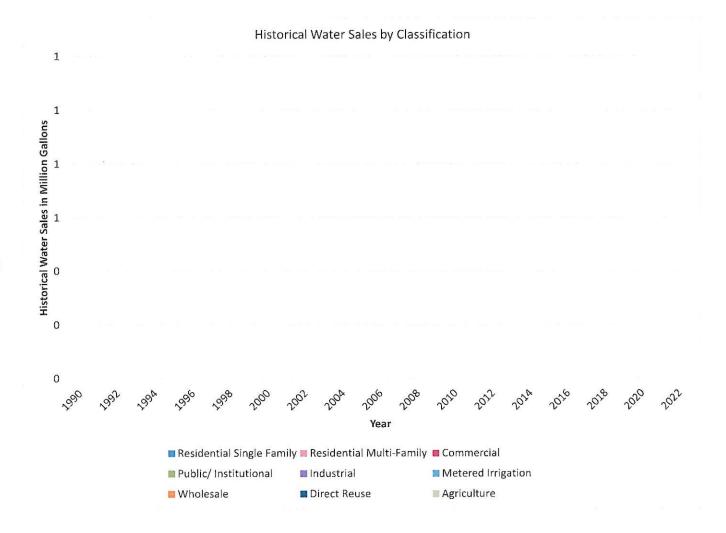


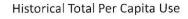
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Year

■ NTMWD Supplies ■ Other Supplies





1

1

Per Capita for Total Use in GPCD

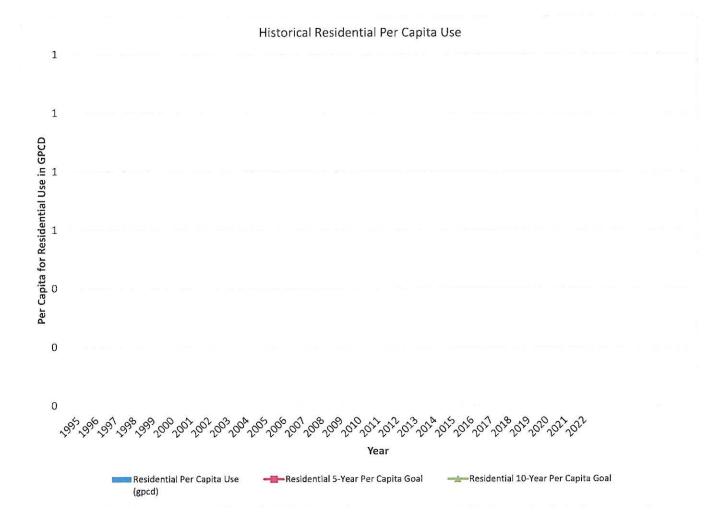
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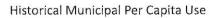
Total Per Capita Use (gpcd)

----Total 5-Year Per Capita Goal

Year

----Total 10-Year Per Capita Goal





1

Per Capita Municipal Use in GPCD

0

Year



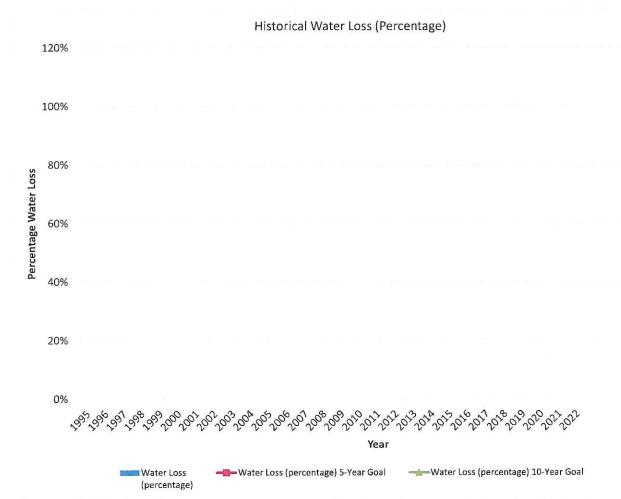
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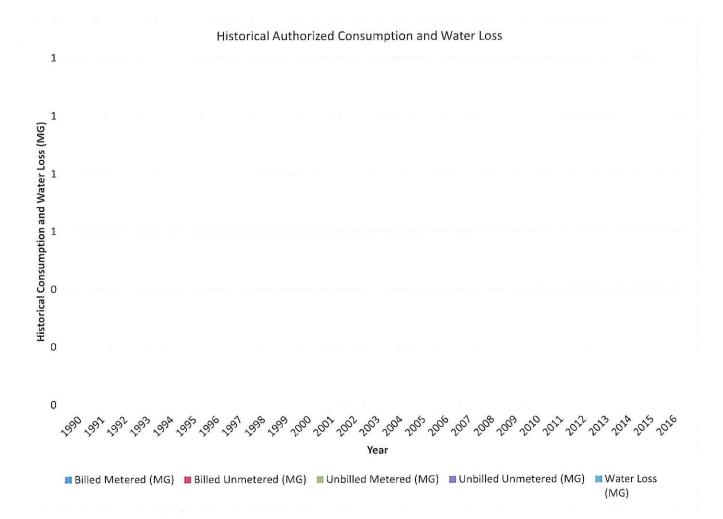
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Per Capita ICIM Use in GPCD 9.0 9.0 8.0

0.2

0.0 \$\frac{\pa_1}{2}\text{3}\text{2}\text{3}\







APPENDIX E

NTMWD Water Utility Profile based on TCEQ Format

2024 NTMWD WATER CONSERVATION PLAN



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Texas Commission on Environmental Quality

Water Availability Division MC-160, P.O. Box 13087 Austin, Texas 78711-3087 Telephone (512) 239-4600, FAX (512) 239-2214

Utility Profile and Water Conservation Plan Requirements for Wholesale Public Water Suppliers

This form is provided to assist wholesale public water suppliers in water conservation plan development. If you need assistance in completing this form or in developing your plan, please contact the Conservation staff of the Resource Protection Team in the Water Availability Division at (512) 239-4600.

Water users can find best management practices (BMPs) at the Texas Water Development Board's website http://www.twdb.texas.gov/conservation/BMPs/index.asp. The practices are broken out into sectors such as Agriculture, Commercial and Institutional, Industrial, Municipal and Wholesale. BMPs are voluntary measures that water users use to develop the required components of Title 30, Texas Administrative Code, Chapter 288. BMPs can also be implemented in addition to the rule requirements to achieve water conservation goals.

Contact Information

Name:	North Texas Municipal Water District		
Address:	P.O. Box 2408, Wylie, TX 75098		
Telephone Number:	(972)442-5405	Fax: (972) 295-6440	
Water Right No.(s):	CA 08-2410, Permit 5003, CA	A 03-4798, CA 02-4925, Permit 4033, Permit	
	4044, CA 02-4920, Permit 121	51, Permit 12152, Permit 12472, Permit 13733	
Regional Water Planning Group:	Region C and Region D		
Person responsible for implementing conservation program:	Kathy Fonville	Phone: (469) 626-4306	
Form Completed By:	Abbie Gardner	11011. (100) 020 1000	
Title:	FNI Engineering Consultant		
Signature:	Abigail H. Hareshur	Date: 01 / 01 / 2024	

A water conservation plan for wholesale public water suppliers must include the following requirements (as detailed in 30 TAC Section 288.5). If the plan does not provide information for each requirement, you must include in the plan an explanation of why the requirement is not applicable.

Utility Profile

I. WHOLESALE SERVICE AREA POPULATION AND CUSTOMER DATA

- A. Population and Service Area Data:
 - 1. Service area size (in square miles):

(Please attach a copy of service-area map)

Over 2,200 square miles in Collin, Dallas, Denton, Fannin, Grayson, Hopkins, Hunt, Kaufman, Rains, Rockwall and Van Zandt Counties. Please see Figure 3 for a service area map.

2. Current population of service area:

2,103,481

- 3. Current population served for:
 - a. Water 2,103,481
 - b. Wastewater 701,160 (approximately one third)
- 4. Population served for previous five years:
- 5. Projected population for service area in the following decades:

Year	Population	
2018	1,814,006	
2019	1,887,639	
2020	1,960,757	
2021	2,021,298	
2022	2,103,481	

Year	Population	
2020	1,960,557	
2030	2,486,000	
2040	3,008,000	
2050	3,536,000	
2060	3,998,000	

6. List source or method for the calculation of current and projected population size.

Population projections were developed as part of the NTMWD Long Range Water Supply Plan and are inclusive of Member Cities and Customers, and customers in Fannin County that NTMWD has committed to serve. Those potential future customers include Bois d'Arc MUD, Ector, Honey Grove, Leonard, Savoy, Southwest Fannin County SUD, and Trenton. Historical populations are collected from Member Cities and Customer's submitted annual reports (Appendix D Reports).

B. Customer Data

List (or attach) the names of all wholesale customers, amount of annual contract, and amount of annual use for each customer for the previous year:

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NTMWD is primarily a wholesale water provider. However, NTMWD does provide retail service to several retail customers. Contracts are demand based with minimum take or pay amounts.

Wholesale Customer	Contracted Amount (Acre-feet)	Previous Year Amount of Water Delivered (acre-feet)
Allen		19,715
Farmersville		854
Forney	<u> </u>	8,999
Frisco	8	42,943
Garland	¥	34,880
McKinney	E	37,808
Mesquite		20,996
Plano		67,678
Princeton	8	4,003
Richardson	#:	30,282
Rockwall		14,463
Royse City		2,736
Wylie	an .	5,699
Ables Springs		353
Bear Creek SUD		1,310
ВНР	#I	579
Caddo Basin SUD	-	1,586
Cash WSC		1,108
College Mound WSC		321
Copeville WSC	<u>■</u> 1	445
East Fork SUD	= 1	2,215
Fairview	1=1	3,149
Fate		2,570
Forney Lake WSC		1,984
Gastonia-Scurry		266
GTUA		4,508
Josephine	-	747

Kaufman		1,416
Kaufman 4-1		1,412
Little Elm		5,547
Lucas		2,323
Melissa		1,102
Milligan WSC		327
Mt. Zion WSC		348
Murphy	_	5,052
Nevada WSC	<u>.</u>	433
N. Collin WSC		1,156
Parker	-	2,071
Prosper		9,180
Rose Hill	_	391
Rowlett		8,363
Sachse	<u> </u>	4,008
Seis Lagos MUD	Ε	523
Sunnyvale	=	2,465
Terrell	Ξ	4,573
Wylie NE WSC	<u> </u>	1,158
Bonham WTP		1,495

II. WATER USE DATA FOR SERVICE AREA

A. Water Delivery

Indicate if the water provided under wholesale contracts is treated or raw water and the annual amounts for the previous five years (in acre feet):

Year	Treated Water	Raw Water
2022	364,706	
2021	322,064	
2020	327,696	
2019	308,223	

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2018	309,657	*
Totals	1,632,346	-

B. Water Accounting Data

1. Total amount of water diverted at the point of diversion(s) for the previous five years (in acre-feet) for all water uses:

Year	2022	2021	2020	2019	2018
Month					
January	22,004	20,019	18,939	19,118	19,429
February	8,947	20,408	17,589	16,922	16,631
March	23,301	22,049	20,211	20,915	21,203
April	26,398	25,092	22,673	22,027	23,612
May	30,845	22,992	28,277_	23,426	30,956
June	39,286	28,143	35,887	25,674	37,099
July	54,961	36,679	41,387	39,432	45,540
August	46,676	40,950	44,538	44,317	41,850
September	38,461	40,872	31,724	42,132	28,263
October	36,445	32,865	34,524	33,784	24,309
November	23,746	25,013	25,841	20,692	20,994
December	22,791	23,320	21,191	19,820	19,608
Totals	383,861	338,402	342,780_	328,259	329,493

2. Wholesale population served and total amount of water diverted for **municipal use** for the previous five years (in acre-feet):

Year	Total Population Served	Total Annual Water Diverted for Municipal Use
2022	2,103,481	383,861
2021	2,021,298	338,402
2020	1,960,757	342,780
2019	1,887,639	328,259
2018	1,814,006	329,493

C. Projected Water Demands

If applicable, project and attach water supply demands for the next ten years using information such as population trends, historical water use, and economic growth in the service area over the next ten years and any additional water supply requirements from such growth.

See Table 4 in the water conservation plan for projected dry year demands.

III. WATER SUPPLY SYSTEM DATA

A. Projected Water Demands

List all current water supply sources and the amounts authorized (in acre feet) with each.

See Table 5 in the water conservation plan for water supply sources and amounts authorized.

- B. Treatment and Distribution System (if providing treated water)
 - 1. Design daily capacity of system (MGD):

Wylie WTP - 840 MGD Nominal Treatment Capacity

Tawakoni WTP - 30 MGD Nominal Treatment Capacity

Leonard WTP - 70 MGD Nominal Treatment Capacity

Bonham WTP - 6.6 MGD Nominal Treatment Capacity

- 2. Storage capacity (MGD):
 - a. Elevated 0 MGD
 - b. Ground 92.9 MGD
- 3. Please attach a description of the water system. Include the number of treatment plants, wells, and storage tanks

Please see Section 2.02 C for a description of the water supply system

IV. WASTEWATER SYSTEM DATA

- A. Wastewater System Data (if applicable)
 - 1. Design capacity of wastewater treatment plant(s) (MGD):

Please see Section 2.02 D for a description of the wastewater system.

2. Briefly describe the wastewater system(s) of the area serviced by the wholesale public water supplier. Describe how treated wastewater is disposed. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and the receiving stream if wastewater is discharged.

Please see Section 2.02 D for a description of the wastewater system.

- B. Wastewater Data for Service Area (if applicable)
 - 1. Percent of water service area served by wastewater system: 33%
 - 2. Monthly volume treated for previous five years (in 1,000 gallons):

2022	2021	2020	2019	2018
3,978,360	4,942,224	4,984,498	5,510,677	3,981,309
4,083,941	4,559,035	5,210,384	4,214,349	5,489,923
4,575,067	5,251,750	7,066,635	4,904,981	5,664,694
4,849,431	4,858,092	4,688,145	5,989,013	4,409,824
5,057,568	6,714,180	4,880,785	6,666,664	4,444,478
				TODAY ANALYSIS YATANA ANALYSIS ANALYSI AN
4,283,598	5,926,354	4,524,416	5,160,874	3,834,292
3,964,310	4,570,964	4,327,814	4,118,650	3,775,229
4 55 4 7 4 7	4 565 000	4 174 607	4.050.030	4 112 154
4,554,747	4,565,088	4,1/4,69/	4,058,039	4,112,154
4 121 004	2 901 104	1 002 662	3 800 500	5,486,645
4,131,004	3,001,134	4,303,003		
A AR1 089	A 139 17A	4 099 562	4 201 554	8,185,523
4,401,005	<u> </u>		4,201,334	
5.611 504	4.226.548	3,899,327	4,275.216	5,214,004
	1,220,310			
5.649.838	4,006.296	4,438.227	4,288,585	5,684,434
55,221,338	57,560,900	57,198,154	57,198,200	60,282,509
	3,978,360 4,083,941 4,575,067 4,849,431 5,057,568 4,283,598 3,964,310 4,554,747 4,131,884 4,481,089 5,611,504 5,649,838	3,978,360 4,942,224 4,083,941 4,559,035 4,575,067 5,251,750 4,849,431 4,858,092 5,057,568 6,714,180 4,283,598 5,926,354 3,964,310 4,570,964 4,554,747 4,565,088 4,131,884 3,801,194 4,481,089 4,139,174 5,611,504 4,226,548 5,649,838 4,006,296	3,978,360 4,942,224 4,984,498 4,083,941 4,559,035 5,210,384 4,575,067 5,251,750 7,066,635 4,849,431 4,858,092 4,688,145 5,057,568 6,714,180 4,880,785 4,283,598 5,926,354 4,524,416 3,964,310 4,570,964 4,327,814 4,554,747 4,565,088 4,174,697 4,131,884 3,801,194 4,903,663 4,481,089 4,139,174 4,099,562 5,611,504 4,226,548 3,899,327 5,649,838 4,006,296 4,438,227	3,978,360 4,942,224 4,984,498 5,510,677 4,083,941 4,559,035 5,210,384 4,214,349 4,575,067 5,251,750 7,066,635 4,904,981 4,849,431 4,858,092 4,688,145 5,989,013 5,057,568 6,714,180 4,880,785 6,666,664 4,283,598 5,926,354 4,524,416 5,160,874 3,964,310 4,570,964 4,327,814 4,118,650 4,554,747 4,565,088 4,174,697 4,058,039 4,131,884 3,801,194 4,903,663 3,809,599 4,481,089 4,139,174 4,099,562 4,201,554 5,611,504 4,226,548 3,899,327 4,275,216 5,649,838 4,006,296 4,438,227 4,288,585

Water Conservation Plan

In addition to the description of the wholesaler's service area (profile from above), a water conservation plan for a wholesale public water supplier must include, at a minimum, additional information as required by Title 30, Texas Administrative Code, Chapter 288.5. Note: If the water conservation plan does not provide information for each requirement an explanation must be included as to why the requirement is not applicable.

A. Specific, Quantified 5 & 10-Year Targets

The water conservation plan must include specific, quantified 5-year and 10-year targets for water savings including, where appropriate, target goals for municipal use in gallons per capita per day for the wholesaler's service area, maximum acceptable water loss, and the basis for the development of these goals. Note that the goals established by a wholesale water supplier under this subparagraph are not enforceable. These goals must be updated during the 5-year review and submittal.

B. Measuring and Accounting for Diversions

The water conservation plan must include a description as to which practice(s) and/or device(s) will be utilized to measure and account for the amount of water diverted from the source(s) of supply.

C. Record Management Program

The water conservation plan must include a monitoring and record management program for determining water deliveries, sales, and losses.

D. Metering/Leak-Detection and Repair Program

The water conservation plan must include a program of metering and leak detection and repair for the wholesaler's water storage, delivery, and distribution system.

E. Contract Requirements for Successive Customer Conservation

The water conservation plan must include a requirement in every water supply contract entered into or renewed after official adoption of the water conservation plan, and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements of Title 30 TAC Chapter 288. If the customer intends to resell the water, then the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of this chapter.

F. Reservoir Systems Operations Plan

The water conservation plan must include a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin. The reservoir systems operations plan shall include optimization of water supplies as one of the significant goals of the plan.

G. Enforcement Procedure and Official Adoption

The water conservation plan must include a means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating official adoption of the water conservation plan by the water supplier; and a description of the authority by which the water supplier will implement and enforce the conservation plan.

H. Coordination with the Regional Water Planning Group(s)

The water conservation plan must include documentation of coordination with the regional water planning groups for the service area of the wholesale water supplier in order to ensure consistency with the appropriate approved regional water plans.

Example statement to be included within the water conservation plan:

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

I. Plan Review and Update

A wholesale water supplier shall review and update its water conservation plan, as appropriate based on an assessment of previous 5-year and 10-year targets and any other new or updated information. A wholesale water supplier shall review and update the next revision of its water conservation plan no later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. The revised plan must also include an implementation report.

V. ADDITIONAL CONSERVATION STRATEGIES

Any combination of the following strategies shall be selected by the water wholesaler, in addition to the minimum requirements of 30 TAC §288.5(1), if they are necessary in order to achieve the stated water conservation goals of the plan. The commission may require by commission order that any of the following strategies be implemented by the water supplier if the commission determines that the strategies are necessary in order for the conservation plan to be achieved:

- 1. Conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;
- 2. A program to assist agricultural customers in the development of conservation, pollution prevention and abatement plans;
- 3. A program for reuse and/or recycling of wastewater and/or graywater;
- 4. Any other water conservation practice, method, or technique which the wholesaler shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

VI. WATER CONSERVATION PLANS SUBMITTED WITH A WATER RIGHT APPLICATION FOR NEW OR ADDITIONAL STATE WATER

Water Conservation Plans submitted with a water right application for New or Additional State Water must include data and information which:

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APPENDIX F

TCEQ Water Conservation Implementation Report

2024 NTMWD WATER CONSERVATION PLAN



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Texas Commission on Environmental Quality

Water Availability Division MC-160, P.O. Box 13087 Austin, Texas 78711-3087 Telephone (512) 239-4600, FAX (512) 239-2214

WATER CONSERVATION IMPLEMENTATION REPORT FORM AND SUMMARY OF UPDATES/REVISIONS TO WATER CONSERVATION PLAN

(Texas Water Code §11.1271(b) and Title 30 Texas Administrative Code §288.30(1) to (4))

Please note, this form replaces the following forms: TCEQ-20645 (Non-Public Water Suppliers) and TCEQ-20646 (Public Water Suppliers)

This Form is applicable to the following entities:

- 1. Water Right Holders of 1,000 acre-feet or more for municipal, industrial, and other non-irrigation uses.
- 2. Water Right Holders of 10,000 acre-feet or more for irrigation uses.

The above noted entities are required by rule to submit updates to their water conservation plan(s) and water conservation implementation report(s) every five years beginning May 1, 2009. See 30 Texas Administrative Code (TAC) §288.30(1) to (4). Entities must also submit any revisions to their water conservation plan within 90 days of adoption when the plans are revised in between the five-year submittal deadlines. This form may be used for the five-year submittal or when revisions are made to the water conservation plans in the interim periods between five-year submittals. Please complete the form as directed below.

1.	Water Right Holder Name: North Texas Municipal Water District
2.	Water Right Permit or Certificate Nos. CA 08-2410, Permit 5003, CA 03-4798, CA 02-4925, Permit 4033
3 -1 2.	Permit 4044, CA 02-4920, Permit 12151, Permit 12152, Permit 12472, Permit 13733
3.	Please Indicate by placing an 'X' next to all that Apply to your Entity:
Water F	eight Holder of 1,000 acre-feet or more for non-irrigation uses
	X Municipal Water Use by Public Water Supplier
	XWholesale Public Water Supplier
	XIndustrial Use
	Mining Use
	Agriculture Non-Irrigation
Water F	eight Holder of 10,000 acre-feet or more for irrigation uses
	Individually-Operated Irrigation System
	Agricultural Water Suppliers Providing Water to More Than One User
4.	Water Conservation Implementation Reports/Annual Reports Water Conservation Annual Reports for the previous five years were submitted to the Texas Water Development Board (TWDB) for each of the uses indicated above as required by 30 TAC §288.30(10)(C)? Yes No

TCEQ no longer requires submittal of the information contained in the detailed implementation report previously required in Forms TCEQ-20645 (Non-Public Water Suppliers) and TCEQ-20646 (Public Water Suppliers). However, the Entity must be up-to-date on its Annual Report Submittals to the TWDB.

Water Conservation Plans

- 5. For the five-year submittal (or for revisions between the five-year submittals), attach your updated or revised Water Conservation Plan for each of the uses indicated in Section 3, above. Every updated or revised water conservation plan submitted must contain each of the minimum requirements found in the TCEQ rules and must be duly adopted by the entity submitting the water conservation plan. Please include evidence that each water conservation plan submitted has been adopted.
 - Rules on minimum requirements for Water Conservation Plans can be found in 30 TAC Chapter 288.
 http://texreg.sos.state.tx.us/public/readtac%24ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=288
 - Forms which include the minimum requirements and other useful information are also available to assist you. Visit the TCEQ webpage for Water Conservation Plans and Reports. https://www.tceq.texas.gov/permitting/water_rights/ wr_technical-resources/conserve.html

Call 512-239-4600 or email to wcp@tceq.texas.gov for assistance with the requirements for your water conservation plan(s) and report(s).

6. For each Water Conservation Plan submitted, list dates and descriptions of the conservation measures implemented, and the actual amount of water saved.

2004 - Public Education, Conservation Workshops for MCCs, Model WCPs, Annual Reporting from MCCs, Conservation Oriented Rate Structure
2006 - Water IQ Media Campaign
2008 - Twice per Week Watering, Time of Day Restrictions
2014 - WaterMyYard Program, Limit to Every Other Week Watering in Winter
2019 - Water is Awesome campaign with Regional Partners, Love Lavon Lake, Water for Otter

See Section 1.02 in the WCP for a detailed description of NTMWD's water conservation program history and associated awards. NTMWD' ongoing Long Range Plan Study found that the conservation program has reduced projected 2025 dry year demands by 95 MGD compared to what they would be if per capita

7. For each Water Conservation Plan submitted, state whether the five and ten-year targets for water savings and water loss were met in your *previous* water conservation

demands were still at year 2000 levels and reduced projected 2080 dry year demands by 260 MGD.

	targets for water savings and water loss were met in your previous water conscivation
	plan.
	Yes <u>Y</u> No
	If the targets were not met, please provide an explanation as to why any of the targets
	were not met, including any progress on that particular target.
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l	

8.	For each five-year submittal, does each water conservation plan submitted contain <i>updated</i> five and ten-year targets for water savings and water loss? Yes_Y No					
	If yes, please identify where in the water conservation plan the updated targets are located (page, section).					
	Section 3.0					
9.	In the box below (or in an attachment titled "Summary of Updates or Revisions to Conservation Plans), please identify any other revisions/updates made to each we conservation plan that is being updated or revised. Please specify the water conservation plan being updated and the location within the plan of the newly accupates or revisions.					
	The 2024 Update included reorganization of content, updated terminology, updated data throughout, new conservation goals, requirement of conservation coordinator for all MCCs, and new optional measures for MCCs.					
10.	Form Completed by (Point of Contact): (If different than name listed above, owner and contact may be different individual(s)/entities)					
	Contact Person Title/Position: Kathy Fonville/Public Education Manager					
	Contact Address: 501 E. Brown Street Wylie TX 75098					
	Contact Phone Number: 469-626-4306 Contact Email Address:					
Cim	Abijail d. Hardner Date: 1/1/2024					





APPENDIX G

Letters to Region C and Region D Water Planning Groups

2024 NTMWD WATER CONSERVATION PLAN



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Regional. Reliable. Everyday.

January 31, 2024

Mr. Kevin Ward Chair, Region C Water Planning Group c/o Trinity River Authority P.O. Box 60 Arlington, Texas 76004

Ra.

2024 NTMWD Water Conservation Plan and 2024 NTMWD Water Resource and

Emergency Management Plan

Dear Mr. Ward:

Please find enclosed a copy of the 2024 North Texas Municipal Water District (NTMWD) Water Conservation Plan and the 2024 North Texas Municipal Water District (NTMWD) Water Resource and Emergency Management Plan. NTMWD is submitting a copy of these plans to the Region C Water Planning Group in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules.

The Board of Directors of the NTMWD adopted these plans on January 25, 2024.

Sincerely,

JENNAFER P. COVINGTON

emof Coringa

Executive Director

JPC/KF/bb

XC:

Billy George Galen Roberts Alex Johnson Kathy Fonville



Regional. Reliable. Everyday.

January 31, 2024

Resource Protection Team, MC-160 c/o Texas Commission on Environmental Quality P.O. Box 13087 Austin, Texas 78711

Re: 2024 NTMWD Water Conservation Plan and 2024 NTMWD Water Resource and

Emergency Management Plan

To Whom It May Concern:

Please find enclosed a copy of the 2024 North Texas Municipal Water District (NTMWD) Water Conservation Plan and the 2024 North Texas Municipal Water District (NTMWD) Water Resource and Emergency Management Plan. NTMWD is submitting a copy of these plans to the Texas Commission on Environmental Quality (TCEQ) in accordance with Texas Commission on Environmental Quality rules.

The Board of Directors of the NTMWD adopted these plans on January 25, 2024.

Sincerely,

JENNAFER P. COVINGTON

engh Cough

Executive Director

JPC/KF/bb

XC:

Billy George Galen Roberts Alex Johnson Kathy Fonville



APPENDIX H

NTMWD Board Minutes Showing
Adoption of the Water Conservation and
Water Resource and Emergency
Management Plan

2024 NTMWD WATER CONSERVATION PLAN



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NORTH TEXAS MUNICIPAL WATER DISTRICT 501 E. Brown Street • Wylie, Texas 75098 (972) 442-5405 - Phone (972) 295-6440 - Fax

MINUTES OF REGULAR MEETING OF THE BOARD OF DIRECTORS JANUARY 25, 2024

The North Texas Municipal Water District (NTMWD) Board of Directors met in a regular meeting on Thursday, January 25, 2024, at 2:30 p.m. Notice of the meeting was legally posted in accordance with Government Code, Title 551, Open Meetings.

I. CALL TO ORDER

President Richard Peasley called the meeting to order at approximately 2:30 p.m.

President Peasley advised the following regarding the meeting:

The meeting today is being conducted in person with two-way video and audio communication between Board members participating by videoconference, establishing a quorum. The public may attend the meeting in person. Audio and video of Board members participating by videoconference will be visible. Members of the public wishing to listen to live audio from the meeting may do so by calling in.

II. INVOCATION

Director Keith Stephens offered the invocation.

III. PLEDGE OF ALLEGIANCE

President Peasley led the Pledge of Allegiance.

IV. PLEDGE OF ALLEGIANCE TO THE TEXAS FLAG

President Peasley led the Pledge of Allegiance to the Texas Flag.

V. ROLL CALL/ANNOUNCEMENT OF QUORUM

The roll was called, and attendance was confirmed as follows:

DIRECTOR	IN PERSON	REMOTE
Terry Sam ANDERSON		√
Kalen BOREN		V
John CARR	Absent	
Rick CROWLEY	V	
George CRUMP	V	
Lori Barnett DODSON	V	
Phil DYER	√	
Joe FARMER	√	
Marvin FULLER	. 🗸	
David HOLLIFIELD	√	
Chip IMRIE	V	
Blair JOHNSON	√	
Ronald KELLEY	√	
James KERR	√	
Geralyn KEVER	V	
Rick MANN		V
Jack MAY	V	
Don PASCHAL	V	
Richard PEASLEY	√	
Randy ROLAND		√
Lynn SHUYLER	Absent	
Keith STEPHENS	V	
Jody SUTHERLAND	√ ·	
John SWEEDEN	√	7 49
Larry THOMPSON	V	

The following NTMWD legal and professional consultants attended the meeting:

- Lauren Kalisek Lloyd Gosselink Rochelle & Townsend
- David Butler and Brandon Tanous Weaver and Tidwell, LLP
- Nick Kurk McDonald Hopkins
- Darrell Switzer Lodestone
- Jessica Ferrell and Victor Xu Marten Law

VI. OPENING REMARKS

A. <u>President's Remarks</u> concerning current events, recognitions, conduct of meeting, posted agenda items, committee assignments, and related matters

President Peasley reviewed the tentative meeting schedule for February 2024 as follows:

Wednesday, February 7:

Executive and Finance Committees

Wednesday, February 21:

Water and Wastewater Committees

Thursday, February 22:

Board Meeting

B. <u>Executive Director's Status Report</u> concerning legislation and regulatory matters, budgets, current projects and ongoing programs of the District including the Regional Water System, Regional Wastewater System, Regional Solid Waste System, Watershed Protection, and Water Conservation

Executive Director Jenna Covington reviewed the 2024 Management Focus Areas. She advised that the list includes plans for accomplishment and will be reviewed in her self-evaluation for the next year. She included the areas of Stewardship, Service and Partnerships, a District-wide approach to navigating PFAS regulations, Texas Oklahoma boundary completion, and regarding People, she plans to improve employee retention rates and enhance employee training programs.

Executive Director Covington provided an update on the Customer Premium matter. She advised that meetings are ongoing and added that discussions have centered on a possible "grandfathering" alternative for existing demands at the current five (5) cent deferential and growth calculated at a higher premium percentage rate. She added that the rate consultant has conducted financial calculations and that information has been shared. The next meeting is scheduled for February 1st. Executive Director Covington advised that Customers still desire assurances that the Board will consider Customer representation.

Executive Director Covington advised that in regard to the Texas Oklahoma boundary issue, staff has met with the consultants and there will be a site visit at the Texoma pump station next week.

Executive Director Covington stated that the City of Health has officially requested to become a Direct Customer of the District.

President Peasley expressed his appreciation to all who completed an evaluation for the Executive Director.

VII. PUBLIC COMMENTS

Prior to the start of the meeting, speakers must complete and submit a "Public Comment Registration Form." During the public comment portion of the meeting, speakers will be recognized by name and asked to provide their comments.

The time limit is three (3) minutes per speaker, not to exceed a total of thirty (30) minutes for all speakers. The Board may not discuss these items but may respond with factual or policy information.

There were no requests for public comment.

VIII. <u>DISCUSSION ITEMS</u>

A. 2023 Independent Management Audit to the Texas Commission on Environmental Quality

Executive Director Covington introduced Brandon Tanous, Partner with Weaver Tidwell, who provided a brief presentation. She added that later in the agenda there is an action item related to this audit.

Mr. Tanous explained that this type of audit must be performed and submitted to the Texas Commission on Environmental Quality (TCEQ) every five years. Guidelines for performance and management of the audit are outlined through the Texas Administrative Code and TCEQ. The purpose of the audit is to identify and/or prevent management issues that could impact the District's operations and the ability to meet the public/customer needs.

Mr. Tanous stated that an assessment of policies, procedures, processes, technology and controls are included in the audit to validate efficiency, effectiveness and compliance. He reviewed the District's policies that were evaluated. Other procedures performed included interviews with stakeholders; reviews of the District's Five-Year Plan, Mission Statement, and Organizational Chart were conducted as well as communication methods.

Mr. Tanous advised that his firm determined that the District has sufficient policies, procedures, and controls in place to enable effective management of the district's operations and employees to meet the established missions and goals of the District. The audit does include four areas for continuous improvement recommended to enhance the District's current processes, procedures, practices, governance and philosophy, including:

- · Enhancement of succession planning
- Continued focus over the IT function
- Enhancement of the centralized training management system
- Enhancement of recruitment and talent retention strategies

Director Jack May asked if the NTMWD should have its own audit department. Mr. Tanous responded that some District's do, others do not; it depends on the size. Director Don Paschal inquired whether Weaver was involved with reviewing the recent cyber security breach. Mr. Tanous responded that it occurred after the audit was completed.

Discussion followed as to the number of Weaver staff who worked on this audit, and how many other water districts Weaver services. Mr. Tanous named several.

President Peasley reminded the Directors that an action item is included on today's agenda to consider accepting the audit.

IX. EXECUTIVE SESSION

At 2:59 p.m. President Peasley announced the need for an Executive Session of the Board of Directors to discuss items:

- A. Texas Government Code, Sections 551.071 Consultation with Attorney, 551.076 Deliberation regarding Security Devices, and 551.089 Security Audits;
 - 1. Cybersecurity incident
- B. Texas Government Code Section 551.071 Consultation with Attorney
 - 1. (1) City of Camden, et al. v. 3M Company, Civil Action No.: 2:23-cv-03147-RMG; and (2) City of Camden, et al. v. E.I. DuPont De Nemours and Company (n/k/a EIDP, Inc.) et al., Civil Action No.: 2:23-cv-03230-RMG

President Peasley confirmed with staff that the public access line was disconnected and that the audio recording was disabled during the Executive Session discussion.

X. RECONVENE INTO REGULAR SESSION

In accordance with Texas Government Code, Chapter 551, the Board of Directors of NTMWD will reconvene into regular session to consider action, if any, on matters discussed in Executive Session.

Open Session reconvened at 4:13 p.m. The public teleconference line was reconnected. No action was taken in Executive Session.

No action was taken in Open Session. President Peasley noted that action on the Executive Session items will be considered later in the agenda.

XI. CONSENT AGENDA ITEMS

President Peasley inquired whether any Director would like to remove an item from the Consent Agenda for separate discussion. There were no requests for separate discussion.

Upon a motion by Director Chip Imrie to approve the Consent Agenda items and a second by Director Don Paschal, the Board of Directors voted unanimously to approve the Consent Agenda items. Director Terry Sam Anderson was absent from the vote.

A. December 2023 Regular Board Meeting Minutes

Recommend the Board of Directors approve the minutes of the regular Board meeting held on Thursday, October 26, 2023, as presented.

B. Modification of Capital Projects Request

Recommend the Board of Directors approve the January 2024, Modification of Capital Projects Request as presented.

C. McKinney Delivery Point No. 3 to McKinney Delivery Point No. 4 Pipeline Project No. 101-0505-18; Resolution No. 24-01; Right-of-Way Acquisition Program

Authorize resolution to amend the previously approved Right-of-Way acquisition program to include the acquisition of property and easements.

XII. AGENDA ITEMS FOR INDIVIDUAL CONSIDERATION

GENERAL / ADMINISTRATIVE AGENDA ITEMS

A. 2023 Independent Management Audit

Acceptance of the 2023 independent Management Audit report and authorize the Executive Director to submit the report o the Texas Commission on Environmental Quality in accordance with Section 292.13(5)(A) of the Texas Administrative Code.

President Peasley reminded the Directors of the earlier presentation on this report.

Upon a motion by Director Geralyn Kever and a second by Director Rick Crowley, the Board of Directors voted unanimously to approve. Director Terry Sam Anderson was absent from the vote.

WATER AGENDA ITEMS

B. Amendments to the NTMWD Water Conservation Plan and NTMWD Water Resource and Emergency Management Plan

Authorize amendments to the NTMWD Water Conservation Plan and NTMWD Water Resource and Emergency Management Plan in compliance with the Texas Commission on Environmental Quality requirements.

Director John Sweeden advised that the Water Committee reviewed this item yesterday and voted to recommend the Board authorize amendments to the NTMWD Water Conservation Plan and NTMWD Water Resource and Emergency Management Plan in compliance with the Texas Commission on Environmental Quality requirements.

In order to meet TCEQ guidelines and continue to advance the District's conservation efforts, revisions are needed to the Water conservation Plan and Water Resource and Emergency Management Plan. TCEQ requires updates to these plans every five years. The current plans were adopted in 2019.

Upon a motion by Director John Sweeden and a second by Director Larry Thompson, the Board of Directors voted unanimously to approve. Director Terry Sam Anderson was absent from the vote.

C. Memorandum of Understanding between the North Texas Municipal Water District and Tarrant Regional Water District for Regional Water Conservation Public Awareness Campaign

Authorize the Executive Director to execute a Memorandum of Understanding between the North Texas Municipal Water District and the Tarrant Regional Water District for funding and execution of a joint regional water conservation public awareness campaign.

Director John Sweeden advised that the Water Committee reviewed this item yesterday and voted to recommend the Board authorize the Executive Director to execute a Memorandum

of Understanding between NTMWD and the Tarrant Regional Water District for funding and execution of a joint regional water conservation public awareness campaign.

This MOU establishes a cooperative five-year partnership with NTMWD, TRWD, and the City of Dallas for the development of a regional public awareness campaign to encourage the efficient use of water, reduce water waste, and reduce water demand in the Dallas-Fort Worth region.

Upon a motion by Director John Sweeden and a second by Director James Kerr, the Board of Directors voted unanimously to approve. Director Terry Sam Anderson was absent from the vote.

D. Texoma Raw Water Pipeline to Leonard Water Treatment Plant Pipeline; Project No. 101-0642-24; Engineering Services Agreement – Preliminary Engineering Authorize funding for preliminary engineering services for the design of a proposed pipeline from the existing Texoma – Wylie Raw Water Pipeline to the Terminal Storage Reservoir at Leonard Water Treatment Plant.

Director John Sweeden advised that the Water Committee reviewed this item yesterday and voted to recommend the Board authorize funding for preliminary engineering services for the design of a proposed pipeline from the existing Texoma-Wylie Raw Water Pipeline to the Terminal Storage Reservoir at Leonard Water Treatment Plant.

This will divert 70 million gallons per day (MGD) of Texoma raw water to the Leonard Plant for blending with the Bois d'Arc Lake water to achieve a future treated water capacity of 210 MGD.

Director Jack May inquired if this Terminal Storage Reservoir will be at capacity with 70 MGD. Deputy Director Cesar Baptista responded that this will maximize the use of our Bois d'Arc Lake water for blending and will occur during Stage 3 of the Leonard Water Treatment Plant.

Upon a motion by Director John Sweeden and a second by Director Don Paschal, the Board of Directors voted unanimously to approve. Director Terry Sam Anderson was absent from the vote.

E. Aquifer Storage and Recovery Feasibility Study; Project No. 101-0643-24; Engineering Services Agreement

Authorize an engineering services agreement for the development of the Aquifer Storage and Recovery Feasibility Study.

Director John Sweeden advised that the Water Committee reviewed this item yesterday and voted to recommend the Board authorize an engineering services agreement for the development of the Aquifer Storage and Recovery (ASR) Feasibility Study.

This study is designed to explore the feasibility of ASR in the North Texas region aquifers.

If ASR is feasible, the study will also provide recommendations on the next steps and planning cost estimates for those next steps.

Director Jack May expressed that there are many aspects of ASR to consider, adding that a study is appropriate. He requested a quarterly update so the Board stays informed on the progress of the study.

President Peasley inquired if an ASR would be considered near the Leonard Water Treatment Plant as well as the Wylie Water Treatment Plant. Assistant Deputy R.J. Muraski responded that those two locations as well as other aquifers will be evaluated. He added that the consultant to be engaged for the study is Advanced Groundwater Solutions.

Director Keith Stephens advised that in 2016 the City of Wylie obtained a "Municipal Setting Designation" and during that process it was discovered that the aquifer in Wylie has possible groundwater contamination.

Director James Kerr spoke in favor of researching the possibility of an ASR.

Director Joe Farmer inquired as to the cost of the study and how long it will take. Mr. Muraski responded that the cost of the study includes a not-to-exceed amount of \$966,000, including \$30,000 in special services. The study should take 12 to 18 months to complete.

Upon a motion by Director John Sweeden and a second by Director Phil Dyer, the Board of Directors voted unanimously to approve. Director Terry Sam Anderson and Director Randy Roland were absent from the vote.

WASTEWATER AGENDA ITEMS

F. Clemons Creek Lift Station, Project No. 501-0635-24; McKinney Prosper Sewer Improvements, Project No. 501-0641-24; Engineering Services Agreement Authorize an engineering services agreement for the preliminary design of the Clemons Creek Lift Station and McKinney Prosper Sewer Improvements projects.

Director Keith Stephens advised that the Wastewater Committee discussed this item at the December meeting.

This item will authorize an engineering services agreement for the preliminary design of the Clemons Creek Lift Station to identify options and routes for the lift station to accommodate growth in Anna, McKinney, and Melissa.

The consultant will also evaluate wastewater conveyance alternatives and recommend pipeline improvements to accommodate growth in McKinney and Prosper north of U.S. Highway 380 along the existing McKinney Prosper sewer infrastructure.

Upon a motion by Director Keith Stephens and a second by Director Geralyn Kever, the Board of Directors voted unanimously to approve. Director Terry Sam Anderson and Director Randy Roland were absent from the vote.

G. Tickey Creek Force Main, Project No. 501-0637-24; Tickey Creek Lift Station, Project No. 501-0638-24; Engineering Services Agreement

Authorize an engineering service agreement for preliminary design of the Tickey Creek Force Main and Tickey Creek Lift Station projects.

Director Keith Stephens advised that the Wastewater Committee reviewed this item at the December meeting.

This item will authorize an engineering services agreement for preliminary design of the Tickey Creek Force Main and Tickey Creek Lift Station projects. The purpose of this project is to increase wastewater conveyance capacity serving growth in Princeton.

Upon a motion by Director Keith Stephens and a second by Director Phil Dyer, the Board of Directors voted unanimously to approve. Director Terry Sam Anderson and Director Randy Roland were absent from the vote.

LAND ACQUISITION / RIGHT OF WAY AGENDA ITEMS

H. Waterline Relocations Along State Highways in Dallas, Rockwall, and Kaufman Counties; Project No. 101-0607-22; Resolution No. 24-02; Right-of-Way Acquisition Program

Authorize resolution to amend the previously approved Right-of-Way Acquisition Program to acquire additional easements and provide additional funding to this project.

Director Chip Imrie advised that the Real Estate Committee reviewed this item in the Committee meeting yesterday. He stated that this item will authorize additional funding to acquire permanent and temporary easements needed to facilitate relocation of waterlines in advance of TxDOT's expansion of FM 552 and SH 205.

Upon a motion by Director Chip Imrie and a second by Director Jody Sutherland, the Board of Directors voted unanimously to approve. Director Terry Sam Anderson and Director Randy Roland were absent from the vote.

At this time, President Peasley stated that the Board would consider action on the Executive Session items. No action was taken on Item IX.A.1.

Executive Session Item IX.B.1.

(1) City of Camden, et al. v. 3M Company, Civil Action No.: 2:23 cv 03147 RMG; and (2) City of Camden, et al. v. E.I. DuPont De Nemours and Company (n/k/a EIDP, Inc.) et al., Civil Action No.: 2:23 cv 03230 RMG

Director Geralyn Kever made the following motion regarding 3M:

Motion to authorize the Executive Director and her staff to withdraw the District's opt-out and thus join the settlement class that was conditionally certified in the AFFF Multi-District Litigation in the United States District Court for the District of South Carolina, Charleston Division, No. 2:18-mm-2873-RMG, subject to the results of ongoing negotiations with 3M



APPENDIX I

Data Requirements for Water Right
Application for New or Additional State
Water – Reuse of Discharges from Multiple
Wastewater Treatment Facilities



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DATA REQUIREMENTS FOR WATER RIGHT APPLICATION FOR NEW OR ADDITIONAL STATE WATER – REUSE OF DISCHARGES FROM MULTIPLE WASTEWATER TREATMENT FACILITIES

Texas Administrative Code (TAC) Title 30, Part 1, Rule 288.7(a) addresses water conservation plans that accompany an application for a water right:

§288.7. Plans Submitted With a Water Right Application for New or Additional State Water.

- (a) A water conservation plan submitted with an application for a new or additional appropriation of water must include data and information which:
 - (1) supports the applicant's proposed use of water with consideration of the water conservation goals of the water conservation plan;
 - (2) evaluates conservation as an alternative to the proposed appropriation; and
 - (3) evaluates any other feasible alternative to new water development including, but not limited to, waste prevention, recycling and reuse, water transfer and marketing, regionalization, and optimum water management practices and procedures.

The North Texas Municipal Water District (NTMWD or District) currently has one application for reuse of treated wastewater discharges in technical review at TCEQ, is preparing one application for the reuse of treated wastewater discharges to be filed with TCEQ soon and plans to develop other reuse applications to file with TCEQ in the future. NTMWD filed its reuse application for Sister Grove Creek Regional Water Resource Recovery Facility (Sister Grove RWRRF), which is under construction and is owned and operated by NTMWD. TCEQ deemed the Sister Grove RWRRF application administratively complete on May 6, 2022 and is currently performing its technical review. NTMWD expects to file a reuse application for the Bonham Wastewater Treatment Plant (Bonham WWTP) in 2024. NTMWD also has other potential sources of reuse water that the District intends to develop at a later time when feasible. Table I-1 shows the sources of the discharges from Sister Gove RWRRP and Bonham WWTP for the new reuse applications.

TABLE I-1 SUMMARY OF POTENTIAL REUSE SOURCES

Facility	Existing or New	Facility Owner	Permitted Discharge (MGD)	River Basin	Watershed
	Facilities with	Current or Immine	nt Reuse Appli	ications	
Sister Grove RWRRF	Under construction	NTMWD	64	Trinity	Lavon Lake
Bonham WWTP	Existing	City of Bonham¹	2.5	Red	Bois d'Arc Lake

1. NTMWD provides all or most of the water supply to users from which the wastewater is generated.

Fully developing available reuse is a primary goal of the Plan. As acknowledged by the Water Conservation Implementation Task Force, water reuse is considered a component of water conservation and as such, should not be viewed as an alternative to conservation. While conservation



does not typically require a water right, water reuse does. Therefore, this appendix addresses the requirements of TAC §288.7(a) for the filed Sister Grove RWRRF reuse application and the soon tobe-filed Bonham WWTP reuse application.

I.1 CONSIDERATION OF WATER CONSERVATION GOALS - 288.7(A)(1)

NTMWD provides wholesale treated water to customers in a ten-county area in North-Central Texas. The area served by NTMWD is one of the fastest growing regions in the country. The population served by NTMWD has increased from 32,000 when NTMWD was formed in 1951 to about 2.0 million as of 2021, and this growth is expected to continue. To meet the anticipated growth and increased water demands, NTMWD is actively promoting water conservation measures with its Member Cities and Customers, and NTMWD is currently implementing the largest wastewater reuse program in the state, and potentially the largest in the U.S. Two of the larger current reuse projects include reuse from the Wilson Creek Regional WWTP (RWWTP) that discharges directly to Lavon Lake. This RWWTP is permitted to discharge up to 64 MGD. The other large reuse project is the East Fork Water Supply Project (the East Fork Wetland). This project diverts wastewater return flows from the East Fork Trinity River and the Trinity River Mainstem to a constructed wetland in Kaufman County. From there, the water is pumped to Lavon Lake for subsequent diversion. Collectively, these two projects can provide 175,000 acre-feet per year of supply. If the Sister Grove RWRRF reuse authorization is granted, the reuse supplies would increase by up to 71,882 acre-feet per year (64 MGD). The Bonham WWTP reuse water could provide an additional 2,800 acre-feet per year. This section describes NTMWD's conservation activities and the resulting water savings.

The Plan includes a variety of conservation measures that are actively implemented and monitored by NTMWD. This suite of water conservation measures goes above and beyond the minimum requirements for conservation plans for wholesale providers. In accordance with the Texas Administrative Code, Title 30, \S 288.5, the minimum requirements are:

- Description of the wholesaler's service area;
- Specification of quantifiable conservation goals;
- Description of the means to measure the amount of water from a source;
- Monitoring and record managing program;
- Metering, leak detection and repair program;
- Requirement that wholesale customers must develop and implement a water conservation plan that incorporates the measures in the wholesale water provider plan;
- Reservoir systems operation plan;
- Means for implementing and enforcing the plan; and
- Documentation of coordination with associated regional water planning groups.



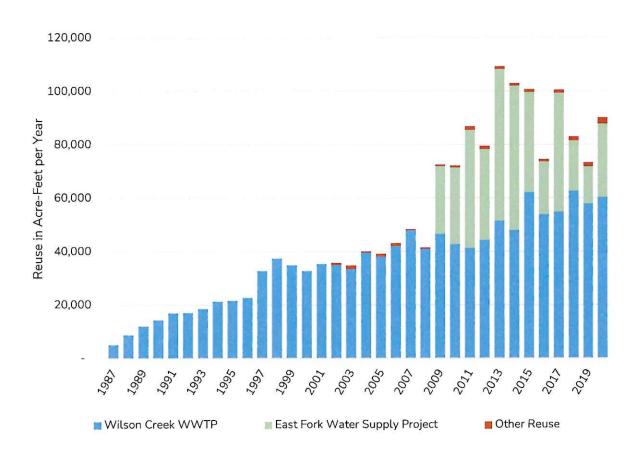
The Plan meets these minimum requirements and specifies other conservation activities that NTMWD and/or its Member Cities and Customers are undertaking to achieve water conservation and efficiency. These other measures include:

- Water conservation workshops for wholesale customers;
- Model Water Conservation and Drought Contingency / Water Resource Emergency
 Management Plans for Member Cities and Customers, including compulsory landscape and water management measures to conserve water;
- Annual reports and tracking of customer water use;
- Reuse and recycling of wastewater;
- Public education and outreach programs;
- Technical assistance to customers:
- Zero discharge from water treatment plants;
- · In-house conservation efforts; and
- Landscape water management measures, including developing the Water My Yard program and the installation of weather stations to assess outdoor irrigation needs.

Each of these measures is described elsewhere in the Plan. As noted above, reuse and recycling of wastewater is a major part of the Plan. NTMWD has the largest reuse program in the state with plans for further development. This intent is captured in the goals of the Plan. The reuse of discharges from the wastewater facilities within NTMWD's service area is part of NTMWD's long-term reuse plan to increase available wastewater return flows for reuse, and fully developing available reuse is consistent with NTMWD's Water Conservation Plan goals. Figure I-1 shows NTMWD's historical water supplies from reuse.



FIGURE I-1: NTMWD REUSE

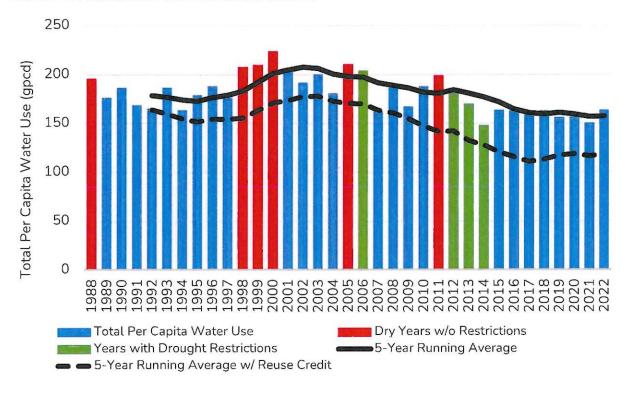


Conservation Water Savings Realized by NTMWD

NTMWD collects water use data annually from its Member Cities and Customers and uses this information to track per capita water use. Figure I-2 shows the annual and five-year running average total per capita use for Member Cities and Customers from 1992 to 2020. Consistent with the Plan, total per capita use is defined as the amount of water used divided by the population served. As shown in this figure, the average per capita water use peaked during the early 2000s and has continued to decline over time. NTMWD's total per capita use in 2000 (the year of highest historical per capita use) was 224 gallons per person per day. The 2020 dry year use for NTMWD in the 2021 Region C Water Plan is 185.7 gallons per person per day, a reduction of 15 percent from the year 2000 level. This shows the success of the conservation efforts of NTMWD, its Member Cities, and its Customers. When considering credit for reuse, there is an even greater decline in per capita water use since the early 2000s. This reflects NTMWD's robust reuse program.



FIGURE I-2: TOTAL RAW WATER PER CAPITA USE



I.2 CONSERVATION AS AN ALTERNATIVE TO THE PROPOSED APPROPRIATION – 288.7 (A)(2)

NTMWD water use in 2020 totaled 342,135 acre-feet. 2020 was not a dry year, and demands would be higher in a dry year. The projected dry year demands for NTMWD in 2020 in the 2021 Region C Water Plan are 408,700 acre-feet per year. The 2021 Region C Water Plan and 2022 State Water Plan project that these demands will nearly double by the year 2070. Based on current water supplies, NTMWD will need to develop an additional 369,000 acre-feet of supply to meet the 2070 demands projected in the 2021 Region C Water Plan. NTMWD expects to meet a portion of this demand via conservation. The 2022 State Water Plan indicates that additional water conservation efforts (beyond what NTMWD has already accomplished) will provide 26,000 acre-feet of NTMWD's total water supplies by 2030 and approximately 44,400 acre-feet by 2070.

NTMWD plans to meet a significant part of it projected demands by reuse. Reuse comprises 37 percent of NTMWD's existing 2020 water supply in the 2021 Region C Water Plan. Increases in available reuse due to population growth and the development of specific reuse projects are expected to provide up to 106,400 acre-feet of additional reuse supplies by 2070. Combined, conservation and reuse are estimated to provide 255,000 acre-feet of water supplies by 2070, which represents approximately 33 percent of NTMWD's projected total water demand in 2070.



Both conservation and reuse are integral strategies in NTMWD's plans to meet projected water demands. The reuse of wastewater discharges associated with current and future water supplies developed by NTMWD will provide supplies to help meet projected water demands. However, in light of NTMWD's projected total demand for nearly 770,000 acre-feet of water by 2070, intensified conservation and reuse alone cannot provide enough water to address all demands. Thus, conservation and reuse strategies are part of the portfolio of strategies that will be pursued by NTMWD to meet the rapidly rising demand for municipal water supplies in the NTMWD service area.

1.3 FEASIBLE ALTERNATIVES TO NEW WATER DEVELOPMENT - 288.7(A)(3)

The 2022 state water planning process identified and evaluated many potential water management strategies for NTMWD. The 2022 State Water Plan considered 16 different water management strategies to meet the projected water supply shortages for NTMWD through 2070. Of these considered strategies, the State Water Plan recommended nine strategies for implementation by NTMWD.

NTMWD has or is currently implementing some of these strategies, including:

- Water Conservation (implemented)
- Bois d'Arc Lake (implemented)
- Sister Grove RWRRF Reuse (facility is currently being constructed and expected to be operating by mid-2024).

The other strategies recommended in the 2022 Texas State Water Plan for implementation include:

- Additional Lake Texoma Blend Phase I (water will be blended with new supplies from Bois d'Arc Lake at the new Leonard water treatment plant)
- Additional measures to access full Lavon Lake yield
- · Additional reuse supplies
 - Expanded wetland reuse
- Additional Lake Texoma water with blending with new fresh water supply Phase II
- · Marvin Nichols Reservoir
- Wright Patman Reallocation
- Oklahoma water supply

Each of these strategies is scheduled for implementation based on the projected water needs and the time to implement the strategy, including considerations for planning and permitting.

Potential alternatives considered for NTMWD but not recommended for implementation in the 2021 Region C Water Plan include developing other new reservoirs (George Parkhouse North and George Parkhouse South), transporting water from existing reservoirs (Toledo Bend and Lake O' the Pines), development of new groundwater supplies, aquifer storage and recovery, and desalination of Lake Texoma water. Most of these alternative strategies will require water rights for new appropriations



and/or interbasin transfers, and they all will require the construction of infrastructure to store and transport water supplies to the NTMWD service area.

To continue its water supply development, NTMWD is applying for a water right from the TCEQ for reuse for wastewater discharges from the Sister Grove RWRRF and the Bonham WWTP. The Sister Grove RWRRF discharges to the Lavon Lake watershed. NTMWD has an intake on Lavon Lake, which could be used to divert the return flows. The Bonham WWTP discharges to the Bois d'Arc Lake watershed. Diversions from this lake began in 2023. NTMWD holds the water rights for Bois d'Arc Lake.

This discussion focuses on alternatives to reuse applications that have not been granted to date. Only alternative projects that have not been implemented and are not currently under construction are discussed here. Descriptions of potential project alternatives are presented below. Table I-2 presents a synopsis of the applicability of these potential strategies as feasible alternatives to reuse.

Each potential project alternative was vetted through the state water planning process and the discussions herein are consistent with the 2021 Region C Water Plan and the 2022 State Water Plan. Strategies that are recommended for implementation by NTMWD are part of suite of strategies to meet NTMWD's water needs. As such, these strategies are not alternatives to reuse but rather complement this supply. For completeness, a full range of potential alternatives is discussed in this appendix, including strategies that are recommended for implementation after reuse.

NTMWD's evaluation of the potential alternatives considered many factors, including cost of the water, quantity, reliability, the potential impacts of developing the project on the environment, natural resources and other water users, timing to develop the strategy, and potential implementation issues. Table I-3 and Figure I-3 show a comparison of the unit costs for the alternative strategies.



TABLE I-2: LIST OF POTENTIAL WATER SUPPLY ALTERNATIVES FOR NTMWD

Strategy ¹	Feasible alternative (Yes/No)	Comment
Additional Lavon Lake	No	This strategy is considered an emergency supply during times of drought and not a significant source of long-term supply. It is not an alternative to long-term supplies from reuse.
Expanded Wetland Reuse	No	The source of water for this strategy is not available until population grows and generates more return flows.
New Lake Texoma Blend (Phase I – Bois d'Arc Lake)	No	Cannot be implemented until after 2030. This is not an alternative for Sister Grove RWRRF and Bonham WWTP reuse due to the online date.
New Lake Texoma Blend (Phase II)	No	Requires additional new source of fresh water to blend to meet drinking water quality standards.
Marvin Nichols Reservoir	No	Has greater environmental impacts than reuse. Significantly higher costs than Sister Grove RWRRF and Bonham WWTP reuse. Could take between 30 and 40 years to implement. Cannot be implemented within the timeframe water is needed.
Wright Patman Reallocation	No	Has greater environmental impacts than Sister Grove RWRRF and Bonham WWTP reuse. Could take between 30 and 40 years to implement. This is not an alternative for Sister Grove RWRRF and Bonham WWTP reuse due to the online date.
Oklahoma Water	No	Current political and legal impediments.
Toledo Bend Reservoir	No	High costs and energy use. Requires agreements with other providers. Cannot be implemented within the timeframe water is needed.
New Lake Texoma (Desalinate)	No	High costs and energy use. Cannot be implemented within the timeframe water is needed.
Lake O' the Pines	No	Development of this source would require contracts with NETMWD and other suppliers. Agreements have not been reached to purchase this water. Due to uncertainty and expected time to develop, this is not a feasible alternative to Sister Grove RWRRF and Bonham WWTP reuse applications.
Carrizo-Wilcox Groundwater	No	Supply uncertainty and competing local interests for water.
Aquifer Storage and Recovery	No	Suitable geologic formation to store water has not been identified. Quantity is small. Unproven for size and location.
George Parkhouse North	No	Has greater environmental impacts than reuse. Yield is impacted by potential upstream reservoirs. Cannot be implemented within the timeframe water is needed.
George Parkhouse South	No	Has greater environmental impacts than reuse of discharges. Yield is impacted by upstream reservoir. Cannot be implemented within the timeframe water is needed.

Each of these strategies was vetted through the state water planning process. Strategies that are
recommended for implementation by NTMWD are part of a suite of strategies to meet NTMWD's water
needs. Some strategies that are identified as not feasible at this time may be a feasible water supply
project in the future.



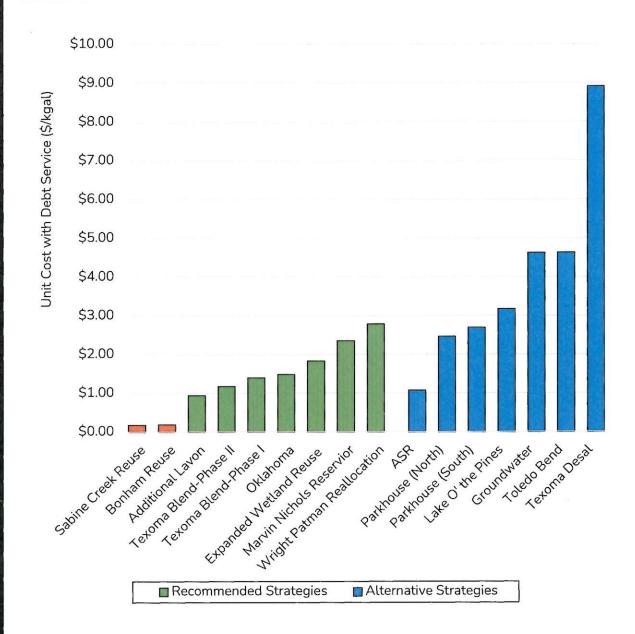
TABLE I-3: COSTS FOR POTENTIAL SUPPLY ALTERNATIVES

Strategy	Costs Reported in State Water Plan ¹			
	Capital Cost for	Unit Cost for NTMWD (\$/kGal.)		
	NTMWD	Pre-Amortization	Post-Amortization	
Proposed Projects				
Sister Grove RWRRF Reuse	\$02	\$0.01	\$0.00	
Bonham WWTP Reuse	\$0 ²	\$0.02	\$0.00	
Potential Alternatives				
Additional Lavon Lake	\$36,546,000	\$0.94	\$0.35	
Expanded Wetland Reuse ³	\$313,864,000	\$1.83	\$0.48	
Lake Texoma Blend – Phase I	\$263,135,000	\$1.40	\$0.30	
Lake Texoma Blend - Phase II	\$398,694,000	\$1.17	\$0.34	
Marvin Nichols Reservoir	\$1,888,324,000	\$2.35	\$0.45	
Toledo Bend Reservoir	\$1,856,658,000	\$4.63	\$1.41	
Oklahoma Water	\$308,163,000	\$1.48	\$0.45	
Lake O' the Pines	\$654,391,000	\$3.17	\$0.99	
Wright Patman Reallocation	\$774,769,000	\$2.78	\$0.67	
George Parkhouse North	\$1,051,889,000	\$2.46	\$0.54	
George Parkhouse South	\$1,329,355,000	\$2.70	\$0.50	
Lake Texoma Desalinate	\$989,141,000	\$8.92	\$4.01	
Carrizo-Wilcox - Brazos Co.	\$818,677,000	\$4.62	\$1.37	
Aquifer Storage and Recovery	\$6,747,000	\$1.07	\$0.49	

- 1. Only alternative projects considered in the 2022 State Water Plan are included in Table I-3 and Figure I-3. Costs in Table I-3 are reported in 2021 dollars. Costs are for raw water only and do not include cost for treatment and treated water system distribution.
- 2. There are no capital costs estimated for the Sister Grove RWRRF and Bonham WWTP reuse projects. These facilities are currently or will be discharging to water bodies from which NTMWD has existing facilities for diversion and use. Only permitting costs are considered for these projects.
- 3. Future reuse projects, excluding Sister Grove RWRRF and Bonham WWTP reuse, are anticipated to be part of additional wetland.



FIGURE I-3 COST COMPARISON OF POTENTIAL ALTERNATIVES TO REUSE PROJECT



The 2021 Region C Water Plan and the 2022 State Water Plan project that NTMWD will have water shortages of approximately 82,300 acre-feet per year by 2030, increasing to nearly 369,000 acre-feet per year by 2070. The near-term shortage is expected to be met through conservation and Bois d'Arc Lake. Expanded reuse through NTMWD's existing reuse projects and new reuse projects could provide up to nearly 25,000 acre-feet per year in 2030 and 106,400 acre-feet per year by 2070. However, to provide this level of reuse, authorizations for reuse from new or expanded WWTPs will be needed. As shown, additional reuse is a critical component of the District's water supply portfolio and conservation program.



Supply from Other Reuse Projects

Additional Wetland Reuse

NTMWD currently diverts return flows from the East Fork Trinity River and Trinity River Mainstem to a constructed wetland facility in Kaufman and Ellis counties (East Fork Wetland). The return flows are conveyed through the constructed wetland facility before being blended in Lavon Lake. With the population growth and an agreement with Dallas Water Utilities for access to these return flows, the quantity of return flows available from these sources exceeds the treatment capacity of the existing East Fork Wetland. This project proposes to expand the diversion and treatment capacity of the return flows through the development of new constructed wetland followed by membrane treatment to remove nutrients. The level of treatment proposed would allow NTMWD to transport the treated return flows either to Lavon Lake or directly to a water treatment plant.

This project is part of NTMWD's long-term reuse program. Due to the required infrastructure for this project, the costs are higher and the time to implement is longer than the reuse of discharges from Sister Grove RWRRF and the Bonham WWTP.

Supply from New (Undeveloped) Reservoirs

Marvin Nichols Reservoir Alternative

Marvin Nichols Reservoir is a proposed reservoir in the Sulphur River Basin in Titus and Red River Counties, about 45 miles west of Texarkana. It is a recommended strategy in the 2022 State Water Plan for NTMWD, the Tarrant Regional Water District (TRWD), and the Upper Trinity Regional Water District (UTRWD). The total available supply from the Marvin Nichols Reservoir to Region C providers is 361,200 acre-feet per year.

The proposed reservoir, if constructed, would be the largest lake contained completely within the State of Texas. At the recommended conservation pool elevation of 328 feet msl, the reservoir would inundate approximately 66,100 acres. Approximately 31,600 acres are classified as bottomland hardwoods or forested wetlands. The U.S. Fish and Wildlife Service (USFWS) has classified some of this acreage as Priority 1 bottomland hardwoods, which is the highest quality classified by USFWS (USFWS, 1984). Additional studies are needed to confirm the quality and extent of these resources.

The Marvin Nichols Reservoir would provide considerable amounts of new water supply to the North Texas area at a relatively low unit cost compared to some other strategies. However, the development of this strategy would have greater environmental impacts than the Sister Grove RWRRF and Bonham WWTP reuse. Environmental impacts of the reuse of discharges are negligible, as there are existing Texas Pollutant Discharge Elimination System permits authorizing the discharge of return flows. The reuse of this treated wastewater after it is discharged will have negligible impacts on the environment.



The development of the Marvin Nichols Reservoir as proposed in the 2022 State Water Plan also requires multiple participants to effectively achieve the cost benefits and full utilization of the available supply. As a result, the timing for this strategy is dependent upon the needs of other participants. In addition, development of this project could take between 30 and 40 years due to the permitting requirements and current opposition.

The Marvin Nichols Reservoir is not a feasible alternative to the reuse of discharges from the Sister Grove RWRRF and Bonham WWTP because it has greater environmental impacts and cannot be implemented within the proposed timeframe to satisfy the purpose and need of this project.

George Parkhouse South Lake Alternative.

George Parkhouse Lake (South) is a potential reservoir located on the South Sulphur River in Hopkins and Delta Counties. It is located immediately downstream from Jim Chapman Lake and would yield 116,000 acre-feet per year. At conservation elevation 401 feet msl, George Parkhouse Lake (South) would inundate approximately 29,000 acres and store 652,000 acre-feet. The yield of George Parkhouse Lake (South) would be reduced substantially by the development of Marvin Nichols Reservoir. The yield studies conducted as part of the Reservoir Site Protection Studies indicate the yield of this lake would be reduced by up to 60 percent (46,400 acre-feet per year) if constructed after Marvin Nichols (HDR et al, 2007).

The lake, as currently configured, would abut the dam for Jim Chapman Lake, and over fifty percent of the land impacted would be bottomland hardwood forest or marsh (HDR et al, 2007).

The proposed George Parkhouse Lake (South) is not a feasible alternative due to the uncertainty of the reliable supply with the development of other reservoirs in the river basin and the environmental impacts. Also, the project probably could not be implemented within the timeframe needed for additional water for NTMWD.

George Parkhouse North Lake Alternative

George Parkhouse Lake (North) is a potential reservoir located on the North Sulphur River in Lamar and Delta Counties, about 15 miles east of the City of Paris. At a proposed conservation elevation of 410.0 feet msl, the reservoir would store 331,000 acre-feet of water and inundate 14,400 acres. The firm yield would be 106,500 acre-feet per year, but its yield would be reduced substantially by the development of the Marvin Nichols Reservoir (HDR et al., 2007).

The reservoir site is located upstream of a designated Priority 1 bottomland hardwood preservation site known as Sulphur River Bottoms West. Most of the land impacted by this alternative is grassland or agricultural lands. Only about 1,200 acres are classified as wetlands. However, the acreage of affected wetlands would require field surveys and verification.



Blending and desalination are very different and are considered two different alternatives to reuse projects. Each alternative is discussed below.

Transport and Blend Lake Texoma Water with New Fresh Water Supplies

Due to environmental concerns and additional costs associated with large desalination projects, NTMWD's preferred use of this water source is to blend the Lake Texoma water with new fresh water supplies. It is anticipated that Lake Texoma water would be blended in a constructed balancing reservoir near a treatment facility and not in an existing lake or stream. This would reduce potential impacts of added dissolved solids to local lakes or streams.

Texoma Blending Phase I

Phase I of the Texoma Blending strategy would transport up to 40,000 acre-feet per year of Lake Texoma water through a new pipeline to the Howe Balancing Reservoir. From there, the water would be transported through an existing pipeline and a new connector pipeline to the Leonard Water Treatment Plant terminal storage facility. The Texoma Blending Phase I strategy is expected to be implemented between 2030 and 2040 to allow for filling of Bois d'Arc Lake and construction of the expanded infrastructure. This project is recommended for NTMWD and is part of its long-range water supplies. It is not considered an alternative to Sister Grove RWRRF and Bonham WWTP reuse because it will complement these projects by providing needed water supplies while the quantities of available return flows increase over time.

Texoma Blending Phase II

Texoma Blending Phase II would increase the use of water from Lake Texoma by blending with new fresh water supplies. Aside from Bois d'Arc Lake (Texoma Blending Phase I), there are no other readily available fresh water supplies in the amount needed to blend with the new water supply from Lake Texoma and existing supplies are not sufficient to provide a blended water of acceptable quality for municipal use. Therefore, the Phase II blended alternative cannot be implemented without also implementing another water supply alternative to provide fresh water to NTMWD. NTMWD does plan to make use of water supplies from this source, but only after development of other significant fresh water sources (such as Marvin Nichols Reservoir or other fresh water source). Blending (Phase II) cannot be considered an alternative to reuse without implementation of another water supply source; thus, blending Lake Texoma water with existing fresh water supplies is not a feasible alternative to Sister Grove RWRRF and Bonham WWTP reuse.

Transport and Desalinate Lake Texoma Water

One option to use Lake Texoma water for municipal purposes is to desalinate the water using reverse osmosis water treatment or another similar treatment method. Desalination can result in the loss of up to one fourth of the raw supply to the treatment process. For this strategy, it was assumed that 20



percent of the source water would be discharged as waste. Therefore for 40,000 acre-feet per year of source water, the amount of treated water for use is approximately 33,600 acre-feet per year. This strategy assumes a new 60 million gallons per day (mgd) desalination facility would be constructed at the Leonard Water Treatment Plant. Lake Texoma water would be transported directly to the Leonard Water Treatment Plant through a new pipeline and the desalination waste would be discharged to the Red River.

Desalination is a much more expensive strategy than blending, and there are considerable uncertainties in the operation and long-term costs of a large-scale desalination facility. The estimated costs for desalination of water from Lake Texoma are based on current cost information for large desalination facilities. However, they are more uncertain than other cost estimates developed for the potential alternatives because few large inland desalination facilities have been built to date. The Fort Bliss/ El Paso Water Utilities desalination facility, which is the largest inland desalination plant in the United States, produces 27.5 mgd. The technology for desalination is improving but it is still costly.

Desalination is also an energy intensive process, and as energy costs continue to increase, these costs are expected to increase. Large scale desalination of Lake Texoma water (>50 mgd) is not a feasible alternative to Sister Grove RWRRF and Bonham WWTP reuse due to the cost uncertainty, the greater energy usage associated with large-scale brine operations, and the time it would take to implement the project.

Toledo Bend Reservoir Alternative

Toledo Bend Reservoir is a 181,600-acre lake located in East Texas on the Texas-Louisiana state line. The total permitted supply from this source for Texas is 970,067 acre-feet per year (an additional authorization of 220,067 acre-feet per year was granted in August 2019). The Sabine River Authority of Texas operates the Texas portion of this lake. In the 2022 State Water Plan the transport of water from Toledo Bend Reservoir to the North Texas area is an alternate joint strategy for NTMWD, TRWD, DWU, and UTRWD. This project, as presented in the 2021 Region C Water Plan, could deliver a total of 650,000 acre-feet per year, with 200,000 acre-feet per year for NTMWD, in two phases.

This alternative will require multiple transmission pipelines to transport the water approximately 200 miles to North Texas. The current concept for this project includes the use and storage of existing reservoirs as part of the transmission system. This transfer of water is anticipated to have a low to medium low impact on the receiving reservoirs.

This strategy requires cooperation with other water providers and an agreement with the Sabine River Authority to purchase the water. The high capital costs for Phase 1 and energy usage associated with the long transmission pipelines result in a unit cost of over \$4.00 per 1000 gallons for raw water delivered to NTMWD. Costs for the other partners are higher. This project requires multiple agreements, which have not been reached, and an interbasin transfer to use the water in the North



Texas area. Considering the costs, time to implement, and uncertainty of agreements, this strategy is not a feasible alternative to Sister Grove RWRRF and Bonham WWTP reuse.

Water from Oklahoma Alternative

Another potential alternative is the use of water from Oklahoma. At the present time, the Oklahoma Legislature has established a moratorium on the export of water from the state. Assuming the moratorium may be lifted in the future, the 2022 State Water Plan recommends that NTMWD develop a project to use water from Oklahoma. It is an alternate strategy for the City of Irving and UTRWD. The recommended project is for 50,000 acre-feet per year and is planned for 2070.

NTMWD has applied for Oklahoma water rights to use water from the Kiamichi River, Muddy Boggy Creek, and stored water in Lake Hugo. At this time, the state cannot act upon these permits without further direction from the Oklahoma Legislature.

The challenges with this strategy are the development issues, including the legal moratorium on out-of-state water sales and the Lacey Act. Under the Lacey Act, it is unlawful to transport invasive species across state lines. Since there is considerable uncertainty as to when these obstacles could be overcome, this strategy cannot be counted on for near-term water supplies. Thus, it is not a feasible alternative to Sister Grove RWRRF and Bonham WWTP reuse.

Lake O' the Pines Alternative

Lake O' the Pines is an existing USACE reservoir in the Cypress River Basin with Texas water rights held by the Northeast Texas Municipal Water District (NETMWD). NTMWD has explored the possibility of purchasing supplies in excess of local needs from the Cypress River Basin. According to the 2021 Region D Water Plan, there is no water available for export from the basin. However, there may be excess supplies from existing contracts.

Lake O' the Pines is about 120 miles from the Metroplex, and the distance and limited supply make this a relatively expensive water management strategy. Development of this source would require contracts with the NETMWD and other Cypress River Basin suppliers with excess supplies. At this time, agreements have not been reached to purchase this water. Due to this uncertainty and expected time to develop, Lake O' the Pines is not a feasible alternative to Sister Grove RWRRF and Bonham WWTP reuse.

Wright Patman Lake Alternatives

The Wright Patman Reallocation strategy involves development of new surface water supplies from the Sulphur River Basin through a reallocation of storage at Wright Patman Lake from its current purpose, flood control, to water conservation storage. The supply quantity and cost identified above are for a specific reallocation of Wright Patman at elevation 235 ft MSL. At that conservation pool



Carrizo-Wilcox Aquifer Groundwater Alternative.

The Carrizo-Wilcox aquifer covers a large area of east, central, and south Texas. Organizations and individuals have been studying the development of water supplies in Anderson County and surrounding counties for export. Anderson County is about 100 miles from NTMWD service area. There are some uncertainties about developing such a large quantity of groundwater and exporting this water to North Texas. The Modeled Available Groundwater (MAG) values adopted through the Groundwater Joint Planning Process for the Carrizo-Wilcox in Anderson County are less than 25,000 acre-feet per year. Some of this groundwater is currently used by local producers. Due to the uncertainty of available supply and competition for this water source, the Carrizo-Wilcox groundwater alternative is not a feasible alternative to Sister Grove RWRRF and Bonham WWTP reuse.

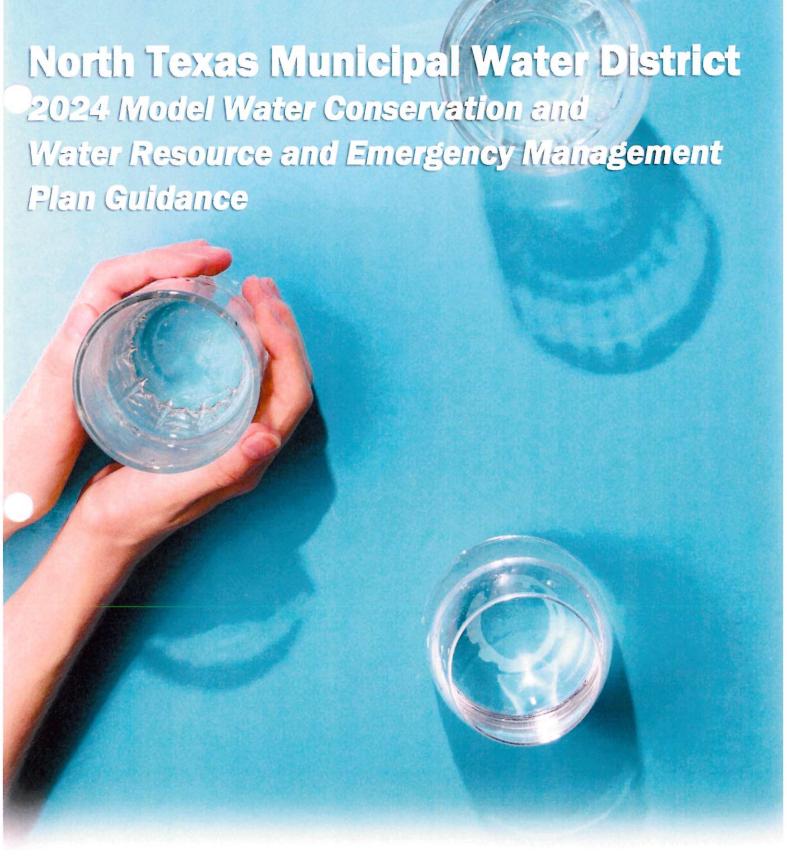
Aguifer Storage and Recovery

Aquifer Storage and Recovery (ASR) is a water management approach that stores surplus water in local aquifers during periods of excess water availability and withdraws the stored water later during periods of drought or peak demands. This strategy can provide additional supply during drought. It requires a suitable aquifer formation and excess supplies that have been treated to a level that will not degrade existing water quality in the aquifer. The small-scale ASR strategy considered for NTMWD assumes a suitable formation can be identified near an existing water treatment facility, and the operations could provide up to 2,500 acre-feet per year during drought.

This quantity of water could help with peak demands but would not provide a significant source of new water. Further study is needed to determine if there are suitable geologic formations that are economically feasible for ASR, and the operation of the system may pose challenges for infrastructure that may not be used regularly. ASR is a not a feasible alternative to Sister Grove RWRRF and Bonham WWTP reuse due to the technical uncertainties with implementation and time to implement.

Conclusion

Based upon the aforementioned information and analysis, there are no feasible alternatives to the Sister Grove RWRRF and Bonham WWTP reuse at this time. Furthermore, this project type is consistent with NTMWD's conservation goals to fully develop its available reuse to meet its future water needs.







Introduction

The North Texas Municipal Water District (NTMWD or the District) developed the following model water conservation and water resource and emergency management plans with assistance from Freese and Nichols, Inc. (FNI). These Plans are intended to be used as a guide by NTMWD Member Cities and Customers as they develop their own plans for the 2024 – 2029 cycle. The model plans are prepared pursuant to Texas Commission on Environmental Quality (TCEQ) rules and are based on the Texas Administrative Code included in **Appendix B**.

Questions regarding the model plans should be addressed to the following:

Abbie Gardner Freese and Nichols, Inc. (817) 735-7527 Galen Roberts North Texas Municipal Water District (972) 442-5405

How to Use the Model Plans

The model water conservation and water resource and emergency management plans are optional resources available to NTMWD Member Cities and Customers.

Simply filling out the model plans will meet both the minimum regulatory requirements as well as those required by NTMWD. This document is intended to serve as guidance and should be treated accordingly. Please note that if there is a change in drought stage this must be reported to TCEQ using the link below.

https://www.tceq.texas.gov/drinkingwater/homeland security/security pws

In order to adopt these plans, you must do the following:

- 1. Update the model plan with entity-specific information.
 - Read through the document and replace everything that is in [green brackets] with information that is specific to your water system. Each plan is unique to your own water system but must have all required elements included in this guidance.
 - Everything that is included in gray italics should be reviewed and removed if it is not
 applicable to your entity. This includes the optional practices that are recommended but not
 required.
 - The appendices will also need to be reviewed and updated.
 - Appendix H and Appendix I are optional and can be removed in their entirety if they
 are not applicable to your entity.
- 2. Send NTMWD the draft plans in electronic format for review by March 1, 2024.
 - NTMWD can review the draft plans to ensure that the minimum requirements are met and help with any remaining questions.
 - Please send the electronic draft plans to the NTMWD contact listed above.
- 3. Adopt the plans.
 - Appendix G includes sample language that can be used to adopt the plan. Select the language based on your entity type (municipal ordinance, utility district order, water supply corporation resolution), update the language as indicated, and delete the other examples. If

a different document is used, please delete the example language and include a copy of the adoption documentation instead.

- 4. Notify and submit final plans to the necessary entities (due by May 1, 2024).
 - **NTMWD**: Submit final versions of the plans to NTMWD via the contact listed above.
 - TCEQ: TCEQ requires the submittal of a Water Utility Profile Form (10218 for retail water suppliers and 20162 for wholesale water suppliers). Fill out the applicable forms and include them in Appendix C of this report when combined. TCEQ also requires the submittal of a Water Conservation Implementation Report (20645 for both retail and wholesale water suppliers). Fill out the applicable forms and include them in Appendix E of this report when combined. All forms are available in the NTMWD portal. Submit final versions of the plans to TCEQ by emailing a copy to wcp@tceq.texas.gov or by mail to the following address:
 - Texas Commission on Environmental Quality Resource Protection Team, MC-160
 P.O. Box 13087
 Austin, Texas 78711-3087
 - TWDB: Water conservation plans can be submitted to the TWDB via an online application called Okta. The application can be launched from the TWDB's website (twdb.texas.gov/apps/overview.asp). If you have any questions, they can be emailed to wcpteam@twdb.texas.gov.
 - Regional Planning Group(s): A copy of the final plans will also need to be submitted to the regional planning group(s) that your entity belongs to. For NTMWD customers this will be Region C and/or Region D. To determine which regional planning group your entity belongs to, visit the TWDB's website (twdb.texas.gov/waterplanning/rwp/regions/). Depending on which region(s) your entity belongs to, the plans will need to be submitted to the appropriate chairs as listed below. Appendix F includes sample letters that can be used. If the samples provided are not used, please delete and include the documentation that was sent.
 - Region C Chair Kevin Ward (wardk@trinityra.org)
 - o Region D Chair Jim Thompson (jimthompson@wardtimber.com)
- 5. The following are required annual submittals.
 - TWDB: Water Conservation Annual Report (Okta Portal)
 - NTMWD: Annual Report (Appendix D)
 - TCEQ: Water Conservation Implementation Report (Appendix E)

[Entity Name]

2024 Water Conservation and Water Resource and Emergency Management Plan

Adopted on [Click or tap to enter a date]

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APPENDIX A List of References

APPENDIX B Texas Administrative Code Title 30 Chapter 288

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APPENDIX F Letters to Regional Water Planning Group and NTMWD

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APPENDIX H Sample Enforcement Ordinance (Illegal Water Connections and Theft of Water)

APPENDIX I Sample Landscape Ordinance

DEFINITIONS

AQUATIC LIFE means a vertebrate organism dependent upon an aquatic environment to sustain its life.

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 and league play sanctioned by the utility providing retail water supply.

BEST MANAGEMENT PRACTICES (BMPs) are voluntary efficiency measures that save a quantifiable amount of water, either directly or indirectly, and that can be implemented within a specific time frame.

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 inventory.

COMMERCIAL FACILITY means business or industrial buildings and the associated landscaping, but does not include the fairways, greens, or tees of a golf course.

CONSERVATION includes 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 water supply is made available for future or alternative uses.

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 but are not limited to perennial and annual rye grass, Kentucky blue grass and fescues.

CUSTOMERS include those entities to whom NTMWD provides wholesale water that are not member cities of NTMWD.

DESIGNATED OUTDOOR WATER USE DAY means a day prescribed by a rule on which a person is permitted to irrigate outdoors.

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.

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.

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 evapotranspiration.

EVAPOTRANSPIRATION (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 humidity.

EXECUTIVE DIRECTOR means the Executive Director of NTMWD and includes a person the Executive Director has designated to administer or perform any task, duty, function, role, or action related to this Plan or on behalf of the Executive Director.

FOUNDATION WATERING means an application of water to the soils directly abutting (within 2 feet of) the foundation of a building or structure.

INTERACTIVE WATER FEATURES means water sprays, dancing water jets, waterfalls, dumping buckets, shooting water cannons, inflatable pools, temporary splash toys or pools, slip-n-slides, or splash pads that are maintained for recreation.

IRRIGATION SYSTEM means a permanently installed, custom-made, site-specific system of delivering water generally for landscape irrigation via a system of pipes or other conduits installed below ground.

LANDSCAPE means any plant material on a property, including any tree, shrub, vine, herb, flower, succulent, ground cover, grass or turf species, that is growing or has been planted out of doors.

MEMBER CITIES include the cities of Allen, Farmersville, Forney, Frisco, Garland, McKinney, Mesquite, Plano, Princeton, Richardson, Rockwall, Royse City, and Wylie, Texas, which are members of NTMWD.

MUNICIPAL USE means the use of potable water provided by a public water supplier as well as the use of treated wastewater effluent for residential, commercial, industrial, agricultural, institutional, and wholesale uses.

NEW LANDSCAPE means: (a) vegetation installed at the time of the construction of a residential or commercial facility; (b) installed as part of a governmental entity's capital improvement project; or (c) installed to stabilize an area disturbed by construction.

ORNAMENTAL FOUNTAIN means an artificially created structure from which a jet, stream, or flow of treated water emanates and is not typically utilized for the preservation of aquatic life.

POND is considered to be a still body of water with a surface area of 500 square feet or more. This does not include recreational swimming pools.

PUBLIC WATER SUPPLIER is an individual or entity that supplies water to the public for human consumption.

REGIONAL WATER PLANNING GROUP is a group established by the Texas Water Development Board to prepare a regional water plan under Texas Water Code §16.053.

REGULATED IRRIGATION PROPERTY means any property of a designated customer class (i.e., commercial) that uses one million gallons of water or more for irrigation purposes in a single calendar year or is greater than one acre in size.

RESIDENTIAL GALLONS PER CAPITA PER DAY (RESIDENTIAL GPCD) means the total gallons sold for retail residential use by a public water supplier divided by the residential population served and then divided by the number of days in the year.

RETAIL CUSTOMERS include those customers to whom the utility provides retail water from a water meter.

[Entity Name]

REUSE is the authorized use for one or more beneficial purposes of use of water that remains unconsumed after the water is used for the original purpose of use and before that water is either disposed of or discharged or otherwise allowed to flow into a watercourse, lake, or other body of stateowned water.

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 rate.

SPRINKLER/SPRAY IRRIGATION is the method of applying water in a controlled manner that is similar to rainfall. The water is distributed through a network that may consist of pumps, valves, pipes, and sprinklers.

SPRINKLER means an above-ground water distribution device that may be attached to a garden hose.

RECREATIONAL/SWIMMING POOL is defined as a body of water that involves contact recreation. This includes activities that are presumed to involve a significant risk of ingestion of water (e.g. wading by children, swimming, water skiing, diving, tubing, surfing, etc.)

TOTAL GALLONS PER CAPITA PER DAY (TOTAL GPCD) means the total amount of water diverted and/or pumped for potable use less wholesale sales divided by the total permanent population divided by the days of the year. Diversion volumes of reuse as defined in TAC §288.1 shall be credited against total diversion volumes for the purposes of calculating GPCD for targets and goals.

WATER CONSERVATION COORDINATOR is the person designated by a retail public water supplier that is responsible for implementing a water conservation plan.

WATER CONSERVATION PLAN means the Member City or Customer water conservation plan approved and adopted by the utility.

WATER RESOURCE AND EMERGENCY MANAGEMENT PLAN means a plan 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 plan.

[Entity Name]

ABBREVIATIONS

Ac-Ft/Yr	Acre-Feet per Year
BMP	Best Management Practices
CDC	Centers for Disease Control and Prevention
DWU	Dallas Water Utilities
E&O	Education and Outreach
ED	Executive Director
EPA	Environmental Protection Agency
ET	Evapotranspiration
FNI	Freese and Nichols, Inc.
gpf	Gallons per Flush
gpm	Gallons per Minute
LAMP	Linear Asset Management Plan
LRWSP	
	Fresh Water Supply District
	Gallons per Capita per Day
	Industrial, Commercial, Institutional and Multifamily
	Million Gallons per Day
	Municipal Utility District
	North Central Texas Council of Governments
	North Texas Municipal Water District
	Special Utility District
	Texas Commission on Environmental Quality
	Tarrant Regional Water District
	Texas Water Development Board
	Upper Trinity Regional Water District
	Utility District
	Water Conservation Advisory Council
	Water Conservation Plan
	Water Resource and Emergency Management Plan
	Water Supply Corporation
	Water Efficiency Network of North Texas
WWTP	Wastewater Treatment Plant

2024 Water Conservation Plan

This Water Conservation Plan has been developed in accordance with the requirements of 30 Texas Administrative Code (TAC) Chapter 288. A copy of the version of 30 TAC Chapter 288 in place at the time of this Plan preparation is included in Appendix B.

[Entity Name]

1.00 INTRODUCTION

[Entity Name] is a [Choose Member City or Customer] of the North Texas Municipal Water District (NTMWD). This Plan was developed following TCEQ guidelines and requirements governing the development of water conservation plans.

The goal of the Water Conservation Plan is to serve as good stewards of water resources by preserving water supplies for essential uses and the protection of public health. The objectives to achieve this goal are as follows:

- To reduce the loss and waste of water.
- To improve efficiency in both indoor and outdoor water use.
- To maximize the level of recycling and reuse.
- To protect and preserve environmental resources.
- To extend the life of current water supplies.
- To raise public awareness of water conservation and encourage responsible personal behavior through public education programs.

1.01 MINIMUM REGULATORY REQUIREMENTS CHECKLIST

A water conservation plan is defined as "[a] strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document". Recognizing the need for efficient use of existing water supplies, TCEQ has developed guidelines and requirements governing the development of water conservation and drought contingency plans. The minimum TCEQ requirements and where they are addressed within this document are included in **Appendix B**.

1.02 ADDITIONAL REQUIREMENTS AND GUIDANCE

In addition to TCEQ rules regarding water conservation, this Plan also incorporates both minimum requirements as required from NTMWD and elements from several conservation initiatives.

- 2024 NTMWD Water Conservation Plan Member Cities and Customers of the NTMWD are required to implement water conservation strategies as designated in the NTMWD Water Conservation Plan. These strategies represent minimum measures to be implemented and enforced to promote water conservation and are to remain in effect on a permanent basis.
- Guidance and Methodology for Reporting on Water Conservation and Water Use Developed by TWDB and TCEQ in consultation with the Water Conservation Advisory

Council (the Guidance). The Guidance was developed in response to a charge by the 82nd Texas Legislature to develop water use and calculation methodology and guidance for preparation of water use reports and water conservation plans in accordance with TCEQ rules.

• North Texas Regional Landscape Initiative – The North Texas regional water providers (NTMWD, DWU and TRWD) collaborated to create the Regional Landscape Initiatives. This document was developed as a resource of best management practices for municipal staff to help reduce water waste and encourage long-term water conservation in the North Texas region. Information consists of the background, importance, and benefits of each BMP and key talking points to consider when implementing the strategy. Several of the optional water management measures included in this Plan are from this collaborative initiative.

2.00 WATER UTILITY PROFILE

This section contains a description of [Entity Name]'s service area and water system. This information can also be reviewed in **Appendix C**, which contains a completed TCEQ Water Utility Profile.

2.01 DESCRIPTION OF THE SERVICE AREA

[Insert a description about your water service area]

2.02 WATER UTILITY PROFILE

[Entity Name]'s existing water supply is composed of the following sources.

- Purchased Treated Water from NTMWD
- [Add any additional water supplies. If none, delete]

3.00 WATER CONSERVATION GOALS

TCEQ rules require the adoption of specific 5-year and 10-year water conservation goals for a water conservation plan.

3.01 5- AND 10-YEAR GOALS

Per capita water use varies from year to year based on several factors including weather conditions, changing demographics and other variables. The TWDB requires specific 5- and 10-year goals which are summarized in **Table 1**.

Table 1: Five- and 10-Year Per Capita Water Use Goals

I The Park Thomas	Historic 5-Year Average	Baseline	5-Year Goal 2029	10-Year Goal 2034
Total (GPCD) ¹	[Enter Goal]	[Enter Goal]	[Enter Goal]	[Enter Goal]
Residential (GPCD) ²	[Enter Goal]	[Enter Goal]	[Enter Goal]	[Enter Goal]
ICIM (GPCD) ³	[Enter Goal]	[Enter Goal]	[Enter Goal]	[Enter Goal]
Water Loss (GPCD)⁴	[Enter Goal]	[Enter Goal]	[Enter Goal]	[Enter Goal]
Water Loss (Percentage) ⁵	[Enter Goal]	[Enter Goal]	[Enter Goal]	[Enter Goal]

¹Total GPCD = (Total Gallons in System / Permanent Population) / 365

3.02 METHOD FOR TRACKING

NTMWD requires Member Cities and Customers to complete annual conservation reports by March 31 of the following year and submit them to NTMWD. A copy of the form is included as **Appendix D**.

²Residential GPCD = (Gallons Used for Residential Use / Residential Population) / 365

³ICIM GPCD = (Gallons Used for Industrial, Commercial, Institutional and Multi-family Use / Permanent Population) / 365

⁴Water Loss GPCD = (Total Water Loss / Permanent Population) / 365

⁵Water Loss Percentage = (Total Water Loss / Total Gallons in System) x 100; or (Water Loss GPCD / Total GPCD) x 100

The completion of this Annual Water Conservation Report allows [Entity Name] to track the effectiveness of its water conservation programs over time and reassess those programs that are not providing water savings, ensuring maximum water use efficiency and greater levels of conservation.

4.00 METERING, RECORDS AND WATER LOSS CONTROL

4.01 METERING PROGRAM

One of the key elements in water conservation is careful tracking of water use and control of losses. Careful metering of water deliveries and water use, detection and repair of leaks in the distribution system, and regular monitoring of unaccounted water are important in controlling losses.

ACCURATE METERING OF TREATED WATER DELIVERIES FROM NTMWD

Accurate metering of water diversions and deliveries, detection, and repair of leaks in the raw water transmission and potable water distribution systems and regular monitoring of nonrevenue water are important elements of NTMWD's program to control losses. Water deliveries from NTMWD are metered by NTMWD using meters with accuracy of ±2%. These meters are calibrated on an annual basis by NTMWD to maintain the required accuracy.

METERING OF CUSTOMER AND PUBLIC USES

[Enter a description about your metering program. For example, include what type of meters your entity uses and how usage is tracked. Member Cities and Customers must meter all internal water uses as well as all subsequent users]

METER TESTING, REPAIR AND REPLACEMENT

[Enter a description about the meter testing, repair and replacement program for your entity. At a minimum, all retail customer meters should be planned to be replaced regularly, with an estimated interval of 15 years. Additionally, all customers must have a meter testing and replacement program.]

4.02 MONITORING AND RECORD MANAGEMENT PROGRAM

As required by TAC Title 30, Chapter 288, a record management system should allow for the separation of water sales and uses into residential, commercial, public/institutional, and industrial categories. This information is included in the NTMWD annual water conservation report that is included in **Appendix D**.

4.03 WATER LOSS CONTROL PROGRAM

DETERMINATION AND CONTROL OF WATER LOSS

Total water loss is the difference between treated water pumped and authorized consumption or metered deliveries to customers. Authorized consumption includes billed metered uses, unbilled metered uses, and unbilled unmetered uses such as firefighting and releases for flushing of lines.

Water losses include two categories:

- Apparent losses such as inaccuracies in customer meters. (Customer meters tend to run more slowly as they age and under-report actual use). Unauthorized consumption due to illegal connections and theft.
- Real losses due to water main breaks and leaks in the water distribution system and unreported losses.

LEAK DETECTION AND REPAIR

[Enter a description about leak detection and repair and how the program is implemented at your entity. Water utility crews and personnel should look for and report evidence of leaks in the water distribution system. Areas of the water distribution system in which numerous leaks and line breaks occur should be targeted for replacement as funds are available]

5.00 CONTRACT REQUIREMENTS FOR WHOLESALE CUSTOMERS

Every water supply contract entered into or renewed after official adoption of this water conservation plan, including any contract extension, will include a requirement that each wholesale customer of [Entity Name] must develop and implement a water conservation plan and water conservation measures. If the customer intends to resell the water, then the contract between the initial supplier and customer must specify that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of Title 30 TAC Chapter 288.

6.00 RESERVOIR SYSTEM OPERATIONS PLAN

[Entity Name] purchases treated water from NTMWD and does not have surface water supplies for which to implement a reservoir system operations plan. NTMWD operates multiple sources of water supply as a system. The operation of the reservoir system is intended to optimize the use of the District's sources (within the constraints of existing water rights) while minimizing energy use cost for pumping, maintaining water quality, minimizing potential impacts on recreational users of the reservoirs and fish and wildlife.

7.00 CONSERVATION PLAN ADOPTION AND ENFORCEMENT

7.01 MEANS OF IMPLEMENTATION AND ENFORCEMENT

Staff will implement the Plan in accordance with adoption of the Plan. **Appendix G** contains a copy of the [Choose adoption mechanism] adopted regarding this Plan. The document designates responsible officials to implement and enforce the Plan.

[Enter description of implementation and enforcement measures. Enforcement could include measures such as (a) Refusing to provide water service at sites of new construction or substantial remodeling for customers who do not meet requirements for water conservation fixtures as established by International Plumbing Code and Amendments (b) Discontinuing service to customers who fail to pay their water bill (c) analyzing water rates and adjusting them to eliminate conservation plan abuse (d)

Issuance of penalties or fines for users of water who do not comply with the provisions of the adopted Plans (e) Discontinuing water service to irrigation meters and fire hydrant meters under described drought conditions]

7.02 REVIEW AND UPDATE OF WATER CONSERVATION PLAN

TCEQ requires that the water conservation plan be updated every five years. This Plan will be updated as required and as appropriate based on new or updated information.

7.03 REGIONAL WATER PLANNING GROUP AND NTMWD NOTIFICATION

In accordance with TCEQ regulations, a copy of this water conservation plan was provided to the Region [Choose which regional planning group your entity falls under]Water Planning Group. In accordance with NTMWD contractual requirements, a copy of this water conservation plan was also sent to NTMWD. **Appendix F** includes a copy of the letters sent.

8.00 WATER CONSERVATION PROGRAM

8.01 PUBLIC EDUCATION PROGRAM

A. NTMWD PUBLIC EDUCATION PROGRAM AND TECHNICAL ASSISTANCE

[Entity Name] obtains water conservation support from the NTMWD. This includes several public education and outreach efforts such as:

- Beginning in 2006 and continuing through 2018, NTMWD invested in the development and implementation of the "Water IQ: Know Your Water" campaign, including newspaper ads, radio spots, billboards, a website, and other forms of communication all intended to educate the public regarding water use and water conservation. During the 2017 campaign, over a quarter of a million people were reached by the program through media relations, outreach and interactive media. The total audience reached through the campaign in 2017 was over 88 million impressions.
- In 2013, NTMWD participated in the "Water My Yard" program to install weather stations throughout its service area to provide consumers with a weekly email or text message and information through the Water My Yard website recommending the adequate amount of supplemental water that is needed to maintain healthy grass in specific locations. This service represents the largest network of weather stations providing ET-based irrigation recommendations in the state of Texas and provides the public with advanced information regarding outdoor irrigation needs, thereby reducing water use. Through a series of selections on the type of irrigation system a consumer has, a weekly email or text message is provided that will recommend how long (in minutes) that an irrigation system needs to run based on the past seven days of weather. This recommendation provides the actual amount of supplemental water that is required for a healthy lawn based on research of the Texas A&M Agrilife Extension Service and proven technologies.

- "Water4Otter" is a water conservation campaign for kids launched by NTMWD in 2014. It is based on the insight that most parents agree they would listen if their kids asked them to conserve water. The TWDB awarded the NTMWD a conservation grant to develop Water4Otter as a model program that could be used throughout the state. The 2023 program included 22 performances at 11 schools in eight different ISDs including stops at elementary schools in Wylie, Garland, Mesquite, Plano, Princeton, Richardson, and Royse City.
- "Love Lavon Lake" is a water conservation campaign designed to help North Texans know their primary water source. The campaign launched in 2018 with a call to action to, "Conserve your water source. Love Lavon Lake". The campaign was based on market research showing the more people know the source of their drinking water, the more likely they are to use it wisely and efficiently.
- NTMWD implemented the "#PledgetoPlantSmart" initiative that seeks to inspire positive change
 in water conservation by encouraging North Texas residents to do their part and plant smart by
 selecting native or adapted plants for their garden and landscaping.

NTMWD also participates in a regional outreach campaign called "Water is Awesome" partnering with the City of Dallas and Tarrant Regional Water District. NTMWD Member Cities and Customers have access to the campaign materials which include:

- In 2019, an additional tagline, "Keep Texas Water on Tap", was incorporated to promote the Water is Awesome brand and direct traffic to waterisawesome.com.
- In 2020, a "customer city toolkit" provided customizable resources allowing cities to incorporate their logos with the campaign brand for their website, social media, and print. Cities are encouraged to use campaign resources to advance conservation efforts.
- In 2021, the regional water providers collaborated to create the Regional Landscape Initiatives. This document was developed as a resource of best management practices for municipal staff to help reduce water waste and encourage long-term water conservation in the North Texas region. Information consists of the background, importance, and benefits of each BMP and key talking points to consider when implementing the strategy. Several of the optional water management measures included in this Plan are from this collaborative initiative.
- The 2023 campaign will include a focus on short HGTV-style web series about converting yards into drought-resistant, water-conservative yardscapes.

Conservation materials and more are made available to Member Cities and Customers through an online portal that is hosted by NTMWD. In addition to the portal the NTMWD actively provides technical assistance through the following:

 NTMWD holds Regularly Scheduled Meetings with Member Cities and Customers for water supply updates, public campaign strategies, and legislative activities related to water and water conservation.

- NTMWD purchases American Water Works Association Research Foundation Publications for use by Member Cities and Customers to further enhance resources for water efficiency, water rate structures, etc. Additionally, NTMWD pays for Member City and Customer membership to the Alliance for Water Efficiency.
- To assist its Member Cities and Customers in the development of their own water conservation
 plans, NTMWD has developed a Model Water Conservation Plan for NTMWD Member Cities
 and Customers. The Model Water Conservation Plan addresses TCEQ requirements for water
 conservation plans for municipal use by public water suppliers and includes advanced water
 conservation strategies beyond TCEQ requirements that mirror the NTMWD plan. This is
 available online at https://www.ntmwd.com/login/portal/.
- Since 2003, NTMWD has held Water Conservation Workshops for staff of its Member Cities and
 Customers. These workshops have covered several conservation-related topics, including TCEQ
 requirements for water conservation and drought contingency plans, advanced water
 conservation strategies, current NTMWD water conservation efforts, water conservation
 programs of the cities, current drought status, progress on future water supplies, and related
 topics. These workshops also provide training and education regarding water use accounting,
 irrigation evaluations, industrial, commercial, and institutional audits, and other procedures.
 Additional examples include workshops on Water Loss Audit Training as well as on the TWDB
 Water Conservation Planning Tool.
- Based on the annual reporting data collected from Member Cities and Customers from 2022, approximately 24% of the District's treated water sales went to supply ICIM users within their service area. To target programs for this customer base, the District hired Plummer Associates, Inc. to create the Industrial, Commercial, Institutional and Multifamily Program. The ICIM program provides NTMWD Member City and Customer staff with the knowledge and tools necessary to identify ICIM customers with high water usage. This program was created to categorize water use data to find outliers and identify areas to concentrate water conservation efforts. This program can help Member Cities and Customers' ICIM water customers develop targeted methods for increasing water efficiency as an alternative to a traditional voluntary approach for water consumption improvement.
- As part of the ICIM program, the District is currently engaging with the Member and Customer Cities to encourage their ICIM customers to participate in Water Efficiency Opportunity Surveys. These surveys encompass a building audit that recommends various water conservation measures that can be implemented to save both money and water. Items addressed include toilet retrofits, urinal retrofits, showerhead retrofits, lavatory retrofits, non-lavatory faucet retrofits, leak repair, water cooled ice machine retrofit, commercial disposer, food steam, cooling tower efficiency and irrigation system efficiency. As of June 2023, NTMWD has utilized the ICIM program to audit four buildings resulting in an estimated annual water savings of 87.4 million gallons.
- As part of its wastewater system, NTMWD has developed Industrial Pretreatment Programs for the cities of Allen, Forney, Frisco, McKinney, Mesquite, Murphy, Plano, Richardson, Rockwall,

Terrell, and Wylie. The pretreatment programs developed by NTMWD are adopted and implemented by the cities, which are also responsible for enforcement of the programs. By reducing allowable volumes of specific pollutants and encouraging pretreatment of industrial wastes, this joint effort by NTMWD and the cities has improved water quality in the region's streams and reservoirs. NTMWD industrial pretreatment personnel are also available to assist cities on request in the review or design of systems to allow industrial recycling and reuse of wastewater. Such systems have reduced water use by some industries, while also reducing wastewater volumes and saving money for the industries.

 NTMWD encourages its Member Cities and Customers to develop and implement Rebate and Bulk Purchasing Programs that help the Member Cities and Customers achieve overall water savings. Further, NTMWD provides technical assistance to those Member Cities and Customers who wish to implement rebate and bulk purchasing programs.

B. PUBLIC EDUCATION PROGRAM

[Enter information about your entity's own public education program and outreach efforts]

8.02 REQUIRED CONSERVATION STRATEGIES

The following water conservation strategies are required. These strategies represent minimum measures to be implemented and enforced to promote water conservation and are to remain in effect on a permanent basis.

A. TCEQ CONSERVATION PLAN REQUIREMENTS

The preceding sections cover the regulatory requirements identified in TAC Title 30, Part 1, Chapter 288, Subchapter B, Rule 288. These rules are included in **Appendix B**.

B. CONSERVATION COORDINATOR

The designation of a Conservation Coordinator is required by House Bill 1648, effective September 1, 2017 for all retail public water utilities with 3,300 service connections or more. The NTMWD requires that all Member Cities and Customers, regardless of number of connections, appoint a Conservation Coordinator who will serve as the primary point of contact between the entity and the District on conservation matters.

The duties of the Conservation Coordinator are as follows:

- Submit an annual conservation report to NTMWD by March 31. This is referred to as the 'Appendix D Report'. NTMWD will provide a blank workbook for each Member City and Customer to fill out prior to the deadline.
- Submit an adopted water conservation and water resource and emergency management plan by May 1, 2024 (and every five years afterwards). These plans must be submitted to NTMWD,

the applicable Regional Water Planning Group, TCEQ and TWDB. The conservation coordinator is also responsible for submitting a copy of the Plan if it is updated after initial adoption and submission.

[Entity Name]'s Conservation Coordinator is identified below. [Entity Name] will notify NTMWD if this changes at any point before the water conservation plan is updated.

[Conservation Coordinator Name] [Phone Number] [Email]

C. WATER CONSERVATION PRICING

Each Member City and Customer must adopt an increasing block rate water structure that is intended to encourage water conservation and to discourage excessive use and waste of water.

[Entity Name]'s water rate structure is as follows:

Residential Rates

Please enter your water rate structure here. An example of an acceptable water rate structure is as follows; (1) Monthly minimum charge. This can (but does not have to) include up to 2,000 gallons water use with no additional charge (2) Base charge per 1,000 gallons up to the approximate average residential use. (3) 2nd tier (from the average to 2 times the approximate average) at 1.25 to 2.0 times the base charge. (4) 3rd tier (above 2 times the approximate average) at 1.25 to 2.0 times the 2nd tier. (5) Additional tiers with further increases if desired. (6) The residential rate can also include a lower tier for basic household use up to 4,000 gallons per month or a determined basic use.]

Commercial/Industrial Rates

[Please enter your water rate structure here. Commercial/Industrial rates should include at least 2 tiers, with rates for the 2nd tier set at 1.25 to 2.0 times that of the first tier. Higher water rates for commercial irrigation use are encouraged, but not required.]

D. ORDINANCES, PLUMBING CODES, OR RULES ON WATER-CONSERVING FIXTURES

[Entity Name]'s plumbing code standards encourages water conservation and meets the minimum statutory requirements. The state has required water-conserving fixtures in new construction and renovations since 1992. The state standards call for flows of no more than 2.5 gallons per minute (gpm) for faucets, 2.5 gpm for showerheads. As of January 1, 2014, the state requires maximum average flow rates of 1.28 gallons per flush (gpf) for toilets and 0.5 gpf for urinals. Similar standards are now required under federal law. These state and federal standards assure that all new construction and renovations will use water-conserving fixtures.

E. REUSE AND RECYCLING OF WASTEWATER

NTMWD currently has the largest wastewater reuse program in the state. NTMWD has water rights allowing reuse of up to 71,882 acre-feet per year (64 MGD) of treated wastewater discharges from the Wilson Creek Wastewater Treatment Plant for municipal purposes. Additionally, NTMWD has permitted

and is currently constructing the Sister Grove Regional Water Resource Recovery Facility (WRRF) in the Lavon Lake watershed. This facility will have an initial capacity of 16 MGD and an ultimate capacity of 64 MGD.

NTMWD has also developed the East Fork Water Reuse Project which can divert treated wastewater discharges by NTMWD and purchased wastewater return flows from TRA via Main Stem Pump Station. NTMWD also provides treated effluent from its wastewater treatment plants available for direct reuse for landscape irrigation and industrial use.

[Add additional information here if applicable. Most Member Cities and Customers do not own or operate their own wastewater treatment plants]

F. YEAR-ROUND OUTDOOR WATERING SCHEDULES

A mandatory weekly watering schedule has been gradually gaining acceptance in the region and the state. NTMWD requires all Member Cities and Customers to adhere to a permanent outdoor watering schedule.

- Summer (April 1 October 31) –Spray irrigation with sprinklers or irrigation systems at each service address must be limited to no more than two days per week. Additionally, prohibit lawn irrigation watering from 10 a.m. to 6 p.m. Education should be provided that irrigation should only be used when needed, which is often less than twice per week, even in the heat of summer.
- Winter (November 1 March 31) Spray irrigation with sprinklers or irrigation systems at each service address must be limited to no more than one day per week with education that less than once per week (or not at all) is usually adequate.

Additional irrigation may be provided by hand-held hose with shutoff nozzle, use of dedicated irrigation drip zones, and/or soaker hose provided no runoff occurs. Many North Texas horticulturists have endorsed twice-weekly watering as more than sufficient for landscapes in the region, even in the heat of summer.

[Add additional information here if applicable. Although the frequency is mandated, the schedule itself is left up to the Member Cities and Customers to designate. Some entities utilize "day of the week" irrigation schedules where watering is based on either even/odd address numbers, trash/recycling pick-up days, or geographic areas related to distribution pressure zones. This measure can be improved with the inclusion of the voluntary ET-based weekly watering advice/recommendations since landscapes frequently need less watering than the year-round watering schedule mandates. Additionally, Member Cities and Customers should also consider review of their existing requirements and updating any codes that may impede or limit the implementation of the year-round outdoor watering schedules or other water conservation measures.']

G. TIME OF DAY WATERING SCHEDULE

NTMWD requires that during the summer months (April 1 – October 31) under normal conditions, spray irrigation with an irrigation system or sprinkler is only permitted on authorized watering days, before 10

a.m. or after 6 p.m. The primary purpose of this measure is to reduce wind drift and evaporation losses during the active growing season. The time-of-day watering schedule requirement increases watering efficiency by eliminating outdoor irrigation use when climatic factors negatively impact irrigation system efficiencies. Midday irrigation is not an optimal time to irrigate because evapotranspiration rates are higher, and plants are more susceptible to stress associated with factors such as higher temperatures and lower relative humidity.

H. IRRIGATION SYSTEM REQUIREMENTS FOR NEW AND COMMERCIAL SYSTEMS

In 2007, the 80th Texas Legislature passed House Bill 1656, Senate Bill 3, and House Bill 4 related to regulating irrigation systems and irrigators by adopting minimum standards and specifications for designing, installing, and operating irrigation systems. The Texas legislation required cities with a population over 20,000 to develop a landscape irrigation program that includes permitting, inspection, and enforcement of water conservation for new irrigation systems.

NTMWD requires all Member Cities and Customers adhere to a minimum set of irrigation standards:

- 1) Require that all new irrigation systems be in compliance with state design and installation regulations (Texas Administrative Code Title 30, Chapter 344).
- Require operational rain and freeze sensors and/or ET or Smart controllers on all new irrigation systems. Rain and freeze sensors and/or ET or Smart controllers must be properly maintained to function properly.
- 3) Require that irrigation systems be inspected at the same time as initial backflow preventer inspection.
- 4) Require the owner of a regulated irrigation property to obtain an evaluation of any permanently installed irrigation system on a [Enter a periodic basis to be define by the Member City or Customer] basis. The irrigation evaluation shall be conducted by a licensed irrigator in the state of Texas and be submitted to the local water provider (i.e., city, water supply corporation).

[Add additional information if applicable. There are many standards above the minimum state and NTMWD requirements that any entity can adopt. These measures however are optional and not required.]

I. WATER WASTE PROVISIONS

NTMWD requires all Member Cities and Customers prohibit activities that waste water. The main purpose of a water waste ordinance is to provide for a means to enforce that water waste is prevented during lawn and landscape irrigation, that water resources are conserved for their most beneficial and vital uses, and that public health is protected. It provides a defined enforcement mechanism for exceptional neglect related to the proper maintenance and efficient use of water fixtures, pipes, and irrigation systems. The ordinance can provide additional assistance or enforcement actions if no corrective action has been taken after a certain number of correspondences.

NTMWD requires that the following water waste ordinance offenses include:

- 1) The use of irrigation systems that water impervious surfaces. (Wind-driven water drift will be taken into consideration.)
- 2) Outdoor watering during precipitation or freeze events.
- 3) The use of poorly maintained sprinkler systems that waste water.
- 4) Excess water runoff or other obvious waste.
- 5) Overseeding, sodding, sprigging, broadcasting or plugging with cool season grasses or watering cool season grasses, except for golf courses and athletic fields.
- 6) The use of potable water to fill or refill residential, amenity, and any other natural or manmade ponds. A pond is considered to be a still body of water with a surface area of 500 square feet or more. This does not include recreational swimming pools.
- 7) Non-commercial car washing that does not use a water hose with an automatic shut-off valve.
- 8) Hotels and motels that do not offer a linen reuse water conservation option to customers.
- 9) Restaurants, bars, and other commercial food or beverage establishments that provide drinking water to customers unless a specific request is made by the customer for drinking water.

[Add additional information here on how water waster ordinance offenses are enforced if applicable. NTMWD does not mandate how the Member Cities and Customers enforce the water waste ordinance offenses. Entities should determine the best means of enforcement, be it tickets or administrative fees that work best for their community. Implementation of AMI systems may allow water providers to notify customers of potential leaks.]

8.03 ADDITIONAL CONSERVATION STRATEGIES

[Add additional information here on other conservation strategies that your entity implements beyond the minimum regulatory and contractual requirements. Several headings are listed below as examples that NTMWD recommends, but does not require, Member Cities and Customers to implement. If none, this entire section can be deleted and the water conservation plan will still meet all minimum requirements.]

A. USE OF ET-BASED WEEKLY WATERING ADVICE/RECOMMENDATIONS

NTMWD requires that Member Cities and Customers adhere to a year-round outdoor watering schedule. However, this conservation practice can be improved with the use of ET-based weekly watering advice and recommendations. Landscapes frequently require less watering than the year-round water schedule allows. This measure can be particularly useful for entities with a significant percentage of customers using automated landscape irrigation systems.

Water providers in the Dallas-Fort Worth (DFW) area (including NTMWD) sponsor weather stations to collect daily weather data and provide the most accurate watering recommendations. Many cities in the DFW area can already take advantage of these ET-based recommendations and incorporate them into their water conservation programs, at no cost to the city. Examples of such a service are shown below.

- Water My Yard An online platform where homeowners can sign up to receive weekly watering recommendations based on their location and a few specifications about their sprinkler system. Users can then choose to accept the recommendations by email, text, or both. Recommendations are available for select cities in Collin, Dallas, Denton, Fannin, Hunt, Kaufman, and Rockwall Counties. Sponsored by NTMWD and Texas A&M AgriLife Extension Service (WaterMyYard.org).
- Water Is Awesome Weekly Watering Advice Weekly watering recommendations for most of North Texas based on data from weather stations scattered throughout the DFW area. The recommendations are distributed by email and text every week and are provided in inches of water needed and the number of minutes necessary to apply that amount of water for spray, rotor, and multi-stream sprinklers. Advice service is available for all of North Central Texas and sponsored by DWU and TRWD. (https://waterisawesome.com/weekly-watering-advice).
- WaterWise Newsletter and Hotline The City of Frisco (Frisco) provides weekly lawn watering
 advice on the city's website and through the WaterWise Newsletter distributed to subscribers
 every Monday. Frisco also has a "Weekly Watering Advice Hotline" you can into weekly to get
 this information. Frisco has a weather station that is used to determine how much water is
 needed each particular week.

Providing evapotranspiration (ET)-based weekly watering recommendations can reduce the amount of water applied for outdoor watering if customers follow the guidance. A drawback with this BMP is the adoption rate. Since these recommendations may change every week, it requires customers to adjust their controllers more often.

It is important to note that at a minimum, Member Cities and Customers must adhere to the year-round outdoor watering schedule set by NTMWD.

B. WATER EFFICIENT LANDSCAPE INITIATIVES

NTMWD recommends that Member Cities and Customers include water efficient landscape initiatives in their water conservation plans. A water efficient landscape is a landscape that is designed and maintained according to basic good horticultural principles that allow for a beautiful healthy landscape with minimal or no supplemental irrigation and no adverse runoff from the landscape property. Water efficient landscapes limit or exclude non-functional turf where possible. Examples of nonfunctional turf include streetscape turf and turf that is purely ornamental. As an alternative to non-functional turf grasses, water efficient landscapes use appropriate plants or other landscaping materials that require little or no supplemental irrigation. Appropriate plants are those selected based on their adaptability to the region's soil and climate. NTMWD's #PledgeToPlantSmart initiative seeks to inspire positive change in water conservation by encouraging North Texas residents to do their part and plant smart by selecting native or adaptive plants for their garden and landscaping. Member Cities and Customers should adopt a native and adaptive recommended plant list for water efficient landscaping. Water efficient landscapes can be an alternative to non-functional turf grasses and may be appropriate for application in new development or retrofits of existing landscapes for both commercial and residential areas.

Water efficient landscape initiatives can be encouraged through financial incentives or required through ordinance. Member Cities and Customers should also consider review of their existing requirements and

removal of current codes that may impede or limit the application of water efficient landscapes. Texas Property Code § 202.007 may be a helpful resource for language for removing potential barriers to water efficient landscapes.

In lieu of an ordinance, water efficient landscapes can be encouraged through rebates for landscape conversion or installation or award programs. Good examples of water efficient landscapes should also be encouraged through public outreach, demonstration gardens, and/or used in public landscapes and rights-of-way. NTMWD has a great example of the implementation of native plants and xeriscaping at the Bois d'Arc Lake Operations Center.

There are several programs available that offer a wealth of information on designing and implementing water efficient landscape.

- Water Wise (http://urbanlandscapeguide.tamu.edu/waterwise.html)
- Texas SmartScapeTM (http://www.txsmartscape.com/)
- EARTH-KINDTM (https://aggie-horticulture.tamu.edu/earthkind/publications/#water)

NTMWD recommends but does not require implementation of this conservation practice in Member Cities' and Customers' own water conservation plans.

C. ADDITIONAL WATER SAVING MEASURES FOR NEW IRRIGATION SYSTEM REQUIREMENTS

NTMWD requires certain irrigation system requirements for new and commercial systems. However, this conservation practice can be improved with additional water savings measures. As discussed previously, Texas legislation regulates irrigation systems and irrigators by adopting minimum standards and specifications for designing, installing, and operating irrigation systems.

Many cities within Region C have adopted irrigation system standards above the minimum state requirements. Some of these standards include:

- Require property owners who install their irrigation system to also comply with the adopted city ordinance.
- Require submission of the irrigation plan in conjunction with the permit application to the applicable city official/department.
- Require all new irrigation systems to not utilize above-ground spray in landscapes that are less than 60 inches in either length or width and which contain impervious pedestrian or vehicular traffic surfaces along two or more perimeters. The use of subsurface or drip irrigation and pressure compensating tubing is permitted if the qualifying area will be irrigated.
- Require all non-turf landscape areas included in the irrigation plan to be designed with subsurface irrigation, drip irrigation, and/or pressure compensating tubing. If the irrigation plan includes a foundation watering system, require a separate zone to be dedicated for drip irrigation for the purpose of watering a structure's foundation.

- Require a flow control master valve to be installed on the discharge side of the backflow prevention device on all new installations.
- Require check valves where elevation differences may result in low head drainage. Check valves may be located at the sprinkler head(s) or on the lateral line.
- Require that pop-up heads shall be installed at grade level and operated to extend above all landscape turfgrass.
- Require that all new irrigation systems must include an automatic controller capable of providing the following features:
 - o Multiple irrigation programs with at least three start times per program
 - Limiting the irrigation frequency to once every 7 days and once every 14 days
 - Water budgeting feature
- Require additional information and description for the required "walk-through". This may include
 but is not limited to a checklist of things to cover on the "walk-through" with the homeowner or
 educational leave behind materials.
- Require the signed maintenance checklist be submitted to the applicable city
 official/department. Require the irrigator's name, license number, company name, telephone
 number, and the dates of the warranty period to be on the maintenance checklist.
- Require the irrigation plan indicating the actual installation of the system and the associated seasonal watering schedule be submitted to the applicable city official/department.
- Require the irrigation plan and maintenance checklist be transferred from the new home builder to the first home buyer with documentation confirming the transaction provided to the applicable city official/department.

It is important to note that, at a minimum, Member Cities and Customers must adhere to the irrigation system requirements set by NTMWD.

D. ADDITIONAL WATER WASTE PROVISIONS

NTMWD requires certain water waste provisions. However, this conservation practice can be improved with the inclusion of additional water waste provisions suited for your entity. As discussed previously, the main purpose of a water waste ordinance is to provide a means for enforcement that water waste is prevented during lawn and landscape irrigation, that water resources are conserved for their most beneficial and vital uses, and that public health is protected. It provides a defined enforcement mechanism for exceptional neglect related to the proper maintenance and efficient use of water fixtures, pipes, and irrigation systems. The ordinance can provide additional assistance or enforcement actions if no corrective action has been taken after a certain number of correspondences.

NTMWD recommends, but does not require, the following additional water waste ordinance offenses:

- 1) Sprinkler runoff from a property greater than 50 feet.
- 2) Operating an irrigation system or other lawn watering device during any form of precipitation or when temperatures are below 32 degrees Fahrenheit.
- 3) Irrigation to pond in a street or parking lot to a depth greater than 1/4 inch.
- 4) Failure to repair a controllable leak, including but not limited to a broken sprinkler head, a leaking valve, leaking or broken pipes, or a leaking faucet.
- 5) Operating a permanently installed irrigation system with a broken head or a head that is out of adjustment where the arc of the spray head is over a street or parking lot.
- 6) Washing of driveways, sidewalks, parking lots or other impervious surface areas with an open hose or spray nozzle attached to an open hose, except when required to eliminate conditions that threaten public health, safety or welfare.
- 7) Installation of splash pads that use a flow-through system instead of a cycle tank.
 - All splash pads should follow the manufacturer's recommendations and health agency guidance for the operation and management of splash pads and have standard operating procedures that help ensure water quality and promote conservation. Standard operating procedures should be tailored to the type of splash-pad (flow-through or cycle tank). Regardless of splash pad type or configuration, consideration should be given towards conservation efforts. For example, operating hours could be adjusted often based on frequency and duration of public use or the runoff can be diverted to serve a functional purpose, such as maintaining native and adapted vegetation.

It is important to note that, at a minimum, Member Cities and Customers must adhere to the water waste provisions set by NTMWD.

E. PARK/ATHLETIC FIELD CONSERVATION

NTMWD recommends that Member Cities and Customers consider the implementation of this conservation practice if there are parks and/or athletic fields within their system that are heavy water users. This conservation practice is intended to address park and athletic field conservation if the water provider manages and/or serves customers with irrigated parks and/or athletic fields. These facilities often face scrutiny by the public for using large amounts of water or being perceived as using excessive amounts. Athletic field and park irrigation conservation practices and the careful use of water in the operation and maintenance of park facilities can effectively reduce water demands. Once a water provider or customer adopts this practice, it should be followed closely to achieve maximum water efficiency benefits. With the dedication of an athletic field manager, athletic field conservation can effectively reduce system water demand. A manager can implement a watering regimen that only uses the amount of water necessary to maintain the viability of the turf and health of its users.

All park facilities should be metered, and water use billed to reinforce the importance of water efficiency. Before developing an efficient watering program, the water provider should consider meeting with parks irrigation personnel, management, and authorized landscape manager. This discussion should focus on

water conservation issues and developing an adequate scope of action for efficiency. The first key is to understand the performance and capabilities of your irrigation system at these facilities. Requiring automatic irrigation systems and controllers at all facilities is recommended. It is essential to have training in soil management, proper aeration methods, nutrient management, mowing, soil testing, and irrigation management.

Achieving conservation can be voluntary or regulatory, based on the needs of the city. Cities may also consider if there is an opportunity to use reclaimed, reused, or recycled water for parks to conserve potable water. However, specific uses must meet TCEQ water quality standards for reclaimed water and human contact, and they must be appropriate for the particular use of the park. Reclaimed water should be applied based on the appropriate water budget. When developing athletic field conservation practices, identify the various stakeholders, including the school district staff, nonprofit athletic associations, private sports complex managers, and city staff. Meeting with them will help achieve long-term results.

NTMWD recommends but does not require implementation of this conservation practice in Member Cities' and Customers' own water conservation plans.

F. GOLF COURSE CONSERVATION AND REUSE

NTMWD recommends that Member Cities and Customers consider the implementation of this conservation practice if there are golf courses within their system that are heavy water users. Golf courses can use a considerable amount of water for irrigation, especially during the summer. The Environmental Institute for Golf found that from 2003-2005, an 18-hole course in the southeast region of the country (including North Central Texas) applied an average of 29 inches of irrigation water per acre every year. Irrigation of course play areas, such as fairways, is necessary to support healthy turfgrass and landscape plants, which are important for course playability and aesthetics. However, golf courses can employ several practices to reduce water use while maintaining the course's playability and aesthetics. Also, overwatering and over-fertilization can negatively impact the water quality in local streams and lakes.

By adopting a conservation plan, golf courses can benefit by:

- Being a good neighbor by conserving local water supplies
- Saving money by reducing water use
- Protecting local water quality
- Maintaining playing conditions on the course
- Increasing irrigation equipment longevity

Water providers may take different golf course conservation approaches: encouraging voluntary efforts by the golf courses to conserve water, making it required as part of a contract, or, if possible, passing an ordinance requiring golf courses to develop and implement a conservation plan. It is important for water providers to work closely with golf courses since they know which practices will have the greatest potential for implementation. The courses may have already completed some best management

practices and knowledge which may be effective or not. Water providers should work to coordinate and implement conservation practices on courses that are owned and operated by the local government.

Water conservation and water quality protection measures for golf courses may include, but are not limited to, the following:

Golf Course Landscape Design and Water Sources

- When feasible, use alternative water sources, such as reclaimed or reuse water from wastewater treatment facilities, to supplement or replace potable water sources. Monitor reclaimed water tests regularly for salinity. Rainwater harvesting and on-site pond storage are additional alternative water sources to consider.
- Select drought-tolerant turfgrass varieties to minimize water use while maintaining a highquality playing surface.
- Reduce the number of irrigated acres on the course by converting non-play and rough areas to native grasses and other drought-tolerant plants. These plants will provide an attractive and low-maintenance landscape.
- Reduce water use by limiting the number and/or size of water features that only serve an aesthetic function.
- Develop a drought management plan that can be implemented when water supplies are low enough to enact local drought mitigation efforts.

Irrigation System Design and Maintenance

- Irrigation systems should be properly designed and installed to maximize water use efficiency while reducing operational costs and maintaining a healthy and playable course.
- Utilize new technology, such as soil moisture sensors, evapotranspiration data, and computercontrolled systems that maximize water efficiency by irrigating based on the turfgrass's moisture needs.
- Hand watering greens or other smaller areas will save water compared to running the entire zone in that area.
- Design the irrigation system to ensure that the irrigation water is distributed evenly and efficiently, with a Distribution Uniformity of 80% or better.
- Frequently inspect all sprinkler heads and other components of the irrigation system and make
 any adjustments or repairs as needed to improve water use efficiency. Conducting a system-wide
 audit by a licensed irrigation professional annually can help identify inefficiencies in the system.
- Fix leaks in the system immediately.
- Rain sensors can shut off the irrigation system when an adequate amount of rainfall is received.

- Irrigating in the early morning hours before temperatures rise and when wind speeds are low will reduce the amount of water lost to evaporation.
- Use mowing, aeration, nutrients, and soil amendments to improve soil condition and increase water infiltration.

Water Quality Protection

- Obtain a soil test before applying fertilizer to ensure the correct type and amount is used.
- Apply fertilizers and chemicals according to the directions on the label. Do not overapply.
- Do not overwater fertilizers when applying, resulting in runoff that could carry fertilizers into a nearby stream or pond.
- Maintain vegetated buffers at least 15 feet from the edge of a stream or pond to capture pollutants that may runoff from the course.

NTMWD recommends but does not require implementation of this conservation practice in Member Cities' and Customers' own water conservation plans.

G. USE OF LICENSED IRRIGATORS TO INSPECT AND REVIEW ALL IRRIGATION PERMITS AND PLANS

Another potential conservation practice to implement is the requirement of licensed irrigation inspectors to review and inspect all irrigation system plans and installed components before a permit is released. Many cities use licensed plumbing inspectors, as allowed by TCEQ rules, to perform these duties. However, having dedicated licensed irrigation inspectors to implement all aspects of an irrigation system permitting program provides a certain level of focus for complying with water efficiency standards. Reviewing irrigation permits and plans before installing allows for changes to be made to the plans and not after the pipe is already in the ground. This ensures the irrigation system's overall quality, promotes irrigation efficiency and guarantees that the system will comply with state and local requirements.

Developing a review and inspection program at the municipal level reduces the chance for unlicensed irrigators to install irrigation systems improperly. Improper installation can waste water, money, cause future maintenance issues, but most importantly, it may contaminate the public water supply. It is crucial to prevent non-potable water in lawn irrigation pipes from flowing into public water supply pipes.

Inspecting the system provides benefits for water conservation. With open-trench inspections, you can check:

- Depth of piping-which protects from freezing temperatures
- Potential invasion of plant/shrubbery roots
- Joints are glued appropriately, and no leaks occur
- Pipe size-to eliminate water hammer

- Pressure management requirements
- The overall layout of the system

Staff can hold an irrigator's license and inspector's license, but to prevent them from installing and inspecting their work, staff can't have both running concurrently. In 2011, the 82nd Texas Legislature passed House Bill 2507, making it a Class C misdemeanor for an individual to operate as an irrigator in the state of Texas without a valid irrigation license. Therefore, effective September 1, 2011, individuals operating without a license are in direct violation of the Texas Occupational Code, Sec. 1903.256.

According to the Texas Administrative Code, upon completion of the irrigation system, four items must be completed to inform and educate the owner of the system: a final walk-through, a maintenance checklist, licensed irrigator contact information, and an as-built plan. All irrigation system plans, installation, and review requirements must be followed for long-term water efficiency. Minimum state requirements for Landscape Irrigation can be found in Title 30, Chapter 344 of the Texas Administrative Code.

NTMWD recommends but does not require implementation of this conservation practice in Member Cities' and Customers' own water conservation plans.

H. OFFER FREE OR DISCOUNTED IRRIGATION SYSTEM CHECK-UPS FOR RESIDENTIAL CUSTOMERS

EPA estimates that up to 70% of the total water used during the summer months is applied as outdoor irrigation. As much as 50% of the water used outdoors is wasted due to overwatering and inefficient or malfunctioning irrigation system components. Irrigation system check-ups (also known as evaluations or audits) for residential customers, is a tool that cities can employ to reduce outdoor watering demand. Check-ups are typically offered at no charge to homeowners. A licensed irrigator will evaluate the irrigation system components and controller settings during a typical check-up to see if the irrigation system can operate more efficiently and identify needed repairs or adjustments. The licensed irrigator will run the irrigation system to see if the sprinkler heads function correctly and apply water only to the intended areas. The licensed irrigator will check the irrigation system's pressure and discuss the controller settings with the homeowner to advise them on the most efficient watering methods.

One valuable aspect of check-ups is the one-on-one assistance and education that a residential customer receives on properly managing the irrigation system. This education can result in long-term water savings because the customer has a better understanding of the system. Water savings may last for multiple years after the evaluation is completed, mainly due to more efficient watering habits. As part of the check-up, the licensed irrigator will identify inefficiencies in the resident's irrigation system and educate them on programming the irrigation controller for more efficient watering practices, such as seasonal adjustment settings and 'Cycle and Soak.' The sponsoring water provider or city can also offer handouts, brochures, and other educational information to residents. The licensed irrigator can provide a report to the residential customer detailing equipment problems and offer recommendations to change watering habits. Reports can include an estimated water savings amount based on recommended adjustments to the controller's run times. The licensed irrigator should also provide a copy of the report to the sponsoring water provider or city.

Benefits of check-ups include one-on-one contact with residential customers, providing educational information that may result in greater water savings than irrigation system fixes alone. Check-ups are an excellent customer service tool when managing residents' complaints. When using check-ups, cities can be selective by targeting high water users or those with large lots to maximize budget and water savings. Water providers or cities should consider conducting a customer satisfaction survey after the check-up is completed to determine how many residents have implemented recommended modifications and gauge satisfaction with the check-up program.

NTMWD recommends but does not require implementation of this conservation practice in Member Cities' and Customers' own water conservation plans.

I. REBATES

NTMWD recommends that Member Cities and Customers consider offering a rebate program as a conservation practice to be included as part of their water conservation plan. As the population increases in the North Texas region, the demand for water grows, especially because many newer cities require irrigation systems in new developments.

Creating a program that encourages residents to become educated on their irrigation system can improve operation and efficiency. Furthermore, when it comes to the type of irrigation system and standard efficiencies, the Texas AgriLife Research and Extension Urban Solutions Center provides the following average efficiencies by system type:

- Surface/Subsurface drip 90%
- Surface micro drip irrigation 85%
- Large Rotors 70%
- Small Rotors 65%
- Spray Heads 50%

This conservation practice of a rebate program provides, in conjunction with a sprinkler evaluation (check-up) program, an incentive to have an evaluation done and make recommended changes. With such a substantial opportunity for efficiency gains, some entities may wish to consider offering rebates to both residential and commercial customers for upgrading their current irrigation systems. By changing out less efficient equipment, this conservation practice intends to increase the irrigation efficiency by 10% or more. With 31% of all residential water use statewide attributed to irrigation, and most of that conducted using spray heads with an average efficiency of 50%, there is a real benefit for developing a rebate program for irrigation systems.

Although rebates for irrigation systems can have large impacts, there are also several other water conservation incentive programs that can be implemented. Other examples include:

• Commercial clothes washer rebates for the purchase and installation of high efficiency card- or coin-operated commercial clothes washers.

- Low-flow toilet replacement and rebate programs.
- Rebates for rain/freeze sensors and/or ET or Smart controllers.
- Low-flow showerhead and sink aerators replacement programs or rebates.
- Residential water efficient clothes washer rebates.
- Pressure reducing valve installation programs or rebates.
- Rain barrel rebates.
- Pool cover rebates.
- On-demand hot water heater rebates.
- Other water conservation incentive programs

NTMWD recommends but does not require implementation of this conservation practice in Member Cities' and Customers' own water conservation plans.

J. ICIM RECOMMENDATIONS

NTMWD has partnered with Plummer Associates, Inc. to develop the ICIM program to identify where additional ICIM water savings can be achieved. Member Cities and Customers can adopt a similar approach by implementing the following conservation practices:

- Classification of Customers by Specific End Use A billing system that identifies customers by criteria specific enough to assess usage patterns can greatly assist in reviewing drivers of demand and developing targeted conservation efforts. For example, rather than identify customers as residential, commercial, industrial, or institutional, which is very broad, utilities can classify customers by specific end uses such as Veterinary Hospitals, Full-Service Hotels, or Day Care Centers.
- End Use Analysis In order to determine what water conservation and efficiency programs and policies will be most effective in managing demand, a water utility needs to understand the makeup of its customer base and conduct a thorough assessment of end use water efficiency measures. Understanding what technologies are available, understanding how far along end users are in adopting these new technologies, and understanding the potential impacts to long-term water use trends, allow planners to target the most effective drivers of change.
- Benchmarking As businesses grow, they tend to add more customers and productions. As such, it can be difficult to see the benefit of targeted conservation efforts if you are only looking at the total annual water use. Development of effective and meaningful benchmarking, such as gallons per pound of product, gallons per guest per day, gallons per meal, etc., allows end users to gauge their effectiveness in using water and energy efficiently by providing measures that are easy to define and allow for comparison amongst piers. Additionally, benchmarking allows end users to gauge the effectiveness of their efforts year over year.

• Providing Water Efficiency Opportunity Surveys for ICIM Customers - A detailed water efficiency survey can enable end users to understand how they use water, develop a complete inventory of water using equipment and processes, identify potential leaks and losses, set realistic reduction goals, identify and implement useful policies, identify low cost/no cost projects and assess potential investments in significant projects aimed at reducing long-term water demand. Members can reach out to NTMWD to participate in the ongoing Water Efficiency Opportunity Surveys.

NTMWD recommends but does not require implementation of this conservation practice in Member Cities and Customers' own water conservation plans. NTMWD recommends that all Member Cities' and Customers participate in the ICIM program and takes advantage of the Water Efficiency Opportunity Surveys.

K. WATER EFFICIENCY OUTREACH PROGRAM

NTMWD provides a wealth of technical assistance and outreach. Wholesale and retail water providers benefit from a consistent water conservation message across multiple cities and can enhance their reputation in the community. Utilizing resources and programs from NTMWD's conservation portal allows Member Cities and Customers to save money by not producing the resources or operating the programs themselves and amplifies a common message. Outreach assistance from NTMWD accomplishes public outreach and education elements in both the wholesale and retail water providers respective water conservation plans.

However, it is recommended that each member city and customer develop their own water efficiency outreach program as well. Perhaps one of the most important actions a utility can take in increasing water use efficiency among its customers is through public education and outreach programs (E&O). The goal of E&O programs is to influence behavioral change for short and long-term water savings. Regular and consistent messaging in customer education will provide an overall picture of water resources in the community. Communicating the need for conservation helps manage existing water supplies and avoids or delays the need for expanded or new infrastructure to meet increased water demands. Customer education also provides valuable information on specific actions they can take in their home or business to meet these community goals while also benefiting from them personally (i.e., managing their water bill).

Each utility should develop an education and outreach plan suited to their community that is adaptable over time. Understanding which messages need to be conveyed regularly and identifying the target audience(s) is key to a successful program. An effective public education program will help develop trust between the community and the utility as relevant, timely, and fact-based information is provided, and customer service is enhanced.

Many cities have dedicated water conservation web pages located within the main city or utility website that provide tips and other resources. TWDB is one source that provides publications and other materials that can be placed online or made available in city/utility buildings. NTMWD's online conservation portal is another. The various education and outreach tools also allow cities to promote other programs offered, such as rebates or events, and to communicate other important messages, such as drought conditions or water service outages.

Some customers prefer to learn in a classroom setting or to tour facilities or demonstration areas to better understand certain conservation techniques. Offering in-person or virtual classes or workshops provides an opportunity to connect with these customers, provides hands-on experience, and allows questions on a range of conservation issues to be answered. NTMWD offers several programs such as these described in Section 8.02.

NTMWD recommends but does not require implementation of this conservation practice in Member Cities' and Customers' own water conservation plans.

2024 Water Resource and Emergency Management Plan

Under Texas Water Code Chapter 11 and Title 30 Texas Administrative Code Chapter 288, Retail, Irrigation and Wholesale Public Water Suppliers are required to develop, implement and submit updated Drought Contingency Plans to TCEQ every five years.

1.00 INTRODUCTION

[Entity Name] is a [Choose Member City or Customer] of the North Texas Municipal Water District (NTMWD). This Plan was developed following TCEQ guidelines and requirements governing the development of drought contingency plans.

The goal of the water resource and emergency management plan is to prepare for potential water shortages and to preserve water for essential uses and the protection of public health. The objectives to achieve this goal are as follows:

- To save water during droughts, water shortages, and emergencies.
- To save water for domestic use, sanitation, and fire protection.
- To protect and preserve public health, welfare, and safety.
- To reduce the adverse impacts of shortages.
- To reduce the adverse impacts of emergency water supply conditions.

Note: NTMWD refers to their drought contingency plan (DCP) as the water resource and emergency management plan (WREMP) and should be considered synonymous with a DCP.

1.01 MINIMUM REGULATORY REQUIREMENTS

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". Recognizing the need for efficient use of existing water supplies, TCEQ has developed guidelines and requirements governing the development of water conservation and drought contingency plans.

The minimum TCEQ requirements and where they are addressed within this document are described in **Appendix B.**

2.00 IMPLEMENTATION AND ENFORCEMENT

2.01 PROVISIONS TO INFORM THE PUBLIC AND OPPORTUNITY FOR INPUT

[Entity Name] provided opportunity for public input in the development of this Plan by the following means:

- Providing written notice of the proposed Plan and the opportunity to comment on the Plan by newspaper and posted notice.
- Posting the draft Plan on the community website and/or social media.
- Providing the draft Plan to anyone requesting a copy.
- Holding a public meeting regarding the Plan on [Enter date that public meeting was held] Public notice of this meeting was provided on the community website and in local newspapers.

Approving the Plan at a public Board meeting on [Enter date]. Public notices of this meeting
were provided on the community website and live audio was available during the meeting.

2.02 PROGRAM FOR CONTINUING PUBLIC EDUCATION AND INFORMATION

[Entity Name] informs and educates the public about the Plan by the following means:

- Preparing a bulletin describing the plan and making it available at City Hall and/or other appropriate locations.
- Including information and making the Plan available to the public through the community website and/or social media.
- Notifying local organizations, schools, and civic groups that utility staff are available to make presentations on the Plan (usually in conjunction with presentations on water conservation programs).
- At any time that the Plan is activated or changes, [Entity Name] 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 community website and/or social
 media. Billing inserts will also be used as appropriate.

2.03 COORDINATION WITH THE REGIONAL WATER PLANNING GROUPS AND NTMWD

Appendix F of this Plan includes copies of letters sent to the Chairs of the appropriate regional water planning groups as well as NTMWD.

2.04 INITIATION AND TERMINATION OF WATER RESOURCE MANAGEMENT STATGES

A. INITITATION OF A WATER RESOURCE MANAGEMENT STAGE

The [Choose 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.

- NTMWD has initiated a water resource management stage. (Stages imposed by NTMWD action must be initiated by Member Cities and Customers.)
- [If applicable, add additional trigger conditions. Additional triggers specific to your entity can include things such as internal storage or emergency conditions. For other trigger conditions internal to a city or water supply entity, the official designee may decide not to order the implementation of a stage even though one or more of the trigger criteria for the stage are met. Factors which could influence such a decision could 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.]

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 website.
- Wholesale customers and NTMWD will be notified by email that provides details of the reasons for initiation of the water resource management stage.
- If any mandatory provisions of the Plan are activated, [Entity Name] will notify TCEQ and the NTMWD Executive Director within five business days. Instructions to report drought contingency plan water use restrictions to TCEQ is available online at https://www.tceq.texas.gov/drinkingwater/homeland_security/security_pws.

B. TERMINATION OF A WATER RESOURCE MANAGEMENT STAGE

Water resource management stages initiated by NTMWD may be terminated after NTMWD has terminated the stage. For stages initiated by the [Choose official designee], they 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 website.
- Wholesale customers and NTMWD will be notified by email.
- If any mandatory provisions of the Plan that have been activated are terminated, [Entity Name] will notify TCEQ Executive Director and the NTMWD Executive Director within five business days. Instructions to report drought contingency plan water use restrictions to TCEQ is available online at https://www.tceq.texas.gov/drinkingwater/homeland_security/security_pws.

The [Choose 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 potentially changed conditions that warrant the continuation of the water resource management stage. The reason for this decision should be documented.

2.05 PROCEDURE FOR GRANTING VARIANCES TO THE PLAN

The [Choose official designee] may grant temporary variances for existing water uses otherwise prohibited under this Plan if one or more of the following conditions are met:

- Failure to grant such a variance would cause an emergency condition adversely affecting health, sanitation, or fire safety for the public or the person or entity requesting the variance.
- Compliance with this Plan cannot be accomplished due to technical or other limitations.
- Alternative methods that achieve the same level of reduction in water use can be implemented.

Variances shall be granted or denied at the discretion of the [Choose official designee]. All petitions for variances should be in writing and should include the following information:

- Name and address of the petitioners.
- Purpose of water use.
- Specific provisions from which relief is requested.
- Detailed statement of the adverse effect of the provision from which relief is requested.
- Description of the relief requested.
- Period of time for which the variance is sought.
- Alternative measures that will be taken to reduce water use and the level of water use reduction.
- Other pertinent information.

2.06 PROCEDURES FOR ENFORCING MANDATORY WATER USE RESTRICTIONS

Mandatory water use restrictions may be imposed in Stage 1, Stage 2 and Stage 3.

[Add description of the procedures for enforcing mandatory water use restrictions. The penalties associated with the mandatory water use restrictions must be determined by each entity and laid out in the Plan. Appendix G contains potential ordinances, resolutions, and orders that may be adopted by the city council, board or governing body approving the Plan, including enforcement of the same.]

2.07 REVIEW AND UPDATE OF WATER RESOURCE AND EMERGENCY MANAGEMENT PLAN

As required by TCEQ rules, [Entity Name] must review their respective Plan every five years. The plan will be updated as appropriate based on new or updated information.

3.00 WATER RESOURCE AND EMERGENCY MANAGEMENT PLAN

Initiation and termination criteria for water management stages include general, demand, supply, and emergency criteria. One of the major indicators of approaching or ongoing drought conditions is NTMWD's combined reservoir storage, defined as storage at Lavon Lake plus storage in Bois d'Arc Lake. Percent storage is determined by dividing the current storage by the total conservation storage when the lakes are full. **Table 1** summarizes the water management stages by triggers based on percent combined storage and associated demand reduction goals and outdoor watering restrictions. The following sections go into more detail on the three water management stages.

TCEQ requires notification when mandatory restrictions are placed on a customer. NTMWD must notify TCEQ when they impose mandatory restrictions on Member Cities and Customers. Member Cities and Customers must likewise notify TCEQ when they impose mandatory restrictions on their customers (wholesale or retail). Measures that impose mandatory requirements on customers are denoted with "requires notification to TCEQ".

NTMWD and the utilities must notify TCEQ within five business days if these measures are implemented (https://www.tceq.texas.gov/response/drought/drought-and-public-water-systems).

Table 2: Water Management Plan Stages Summary

Drought Stage		April to October	November to March	Demand	O. J. Law Website Best inties	
		Percent Combined Storage		Reduction Goal	Outdoor Watering Restrictions	
Stage 1	Initiation	70%	60%	2%	2X per week (Apr-Oct) 1X per week (Nov-Mar)	
	Termination	75%	65%			
Stage 2	Initiation	55%	45%	5%	1X per week (Apr-Oct)	
	Termination	70%	60%	370	1X every other week (Nov-Mar)	
Stage 3	Initiation	30%	20%	30%	No outdoor watering	
	Termination	55%	45%	30%		

3.01 WATER RESOURCE MANAGEMENT - STAGE 1

A. INITIATION AND TERMINATION CRITERIA FOR STAGE 1

NTMWD has initiated Stage 1, which may be initiated when one or more of the following criteria is met:

General Criteria

- o The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the declaration of Stage 1.
- One or more source(s) is interrupted, unavailable, or limited due to contamination, invasive species, equipment failure or other cause.
- The water supply system is unable to deliver needed supplies due to the failure or damage of major water system components.
- Part of the system has a shortage of supply or damage to equipment. (NTMWD may implement measures for only that portion of the system impacted.)
- A portion of the service area is experiencing an extreme weather event or power grid/supply disruptions.

Demand Criteria

 Water demand has exceeded or is expected to exceed 90% of maximum sustainable production or delivery capacity for an extended period.

Supply Criteria

 The combined storage in Lavon and Bois d'Arc Lake, as published by the TWDB, is less than:

- 70% of the combined conservation pool capacity during any of the months of April through October
- 60% of the combined conservation pool capacity during any of the months of November through March
- The Sabine River Authority (SRA) has indicated that its Upper Basin water supplies used by NTMWD (Lake Tawakoni and/or Lake Fork) are in a Stage 1 drought.
- NTMWD is concerned that Lake Texoma, Jim Chapman Lake, the East Fork Water Reuse Project, Main Stem Pump Station, and/or some other NTMWD water source may be limited in availability within the next six months.

Stage 1 may terminate when one or more of the following criteria is met:

General Criteria

- The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the termination of Stage 1.
- The circumstances that caused the initiation of Stage 1 no longer prevail.

Supply Criteria

- The combined storage in Lavon and Bois d'Arc Lakes, as published by the TWDB, is greater than:
 - 75% of the combined conservation pool capacity during any of the months of April through October
 - 65% of the combined conservation pool capacity during any of the months of November through March

B. GOAL FOR USE REDUCTION UNDER STAGE 1

The goal for water use reduction under Stage 1 is an annual reduction of 2% in the use that would have occurred in the absence of water management measures. Because discretionary water use is highly concentrated in the summer months, savings should be higher than 5% in summer to achieve an annual savings goal of 2%. If circumstances warrant, the Executive Director can set a goal for greater or less water use reduction.

C. WATER MANAGEMENT MEASURES AVAILABLE UNDER STAGE 1

The actions listed below are provided as potential measures to reduce water demand. NTMWD may choose to implement any or all of the available restrictions in Stage 1.

- Requires notification to TCEQ by NTMWD. Require Member Cities and Customers (including indirect Customers) to initiate Stage 1 restrictions in their respective, independently adopted water resource management plans.
- Continue actions described in the water conservation plan.
- Increase enforcement of landscape watering restrictions from the water conservation plan.

- Initiate engineering studies to evaluate alternative actions that can be implemented if conditions worsen.
- Accelerate public education efforts on ways to reduce water use.
- Halt non-essential NTMWD water use.
- Encourage the public to wait until the current drought or water emergency situation has passed before establishing new landscaping.
- Encourage all users to reduce the frequency of draining and refilling swimming pools.
- Requires notification to TCEQ by Member Cities and Customers and/or NTMWD. Initiate a rate surcharge for all water use over a certain level.
- Requires notification to TCEQ by Member Cities and Customers. Parks, golf courses, and
 athletic fields using potable water for landscape watering are required to meet the same
 reduction goals and measures outlined in this stage. As an exception, golf course greens and tee
 boxes may be hand watered as needed.

3.02 WATER RESOURCE MANAGEMENT - STAGE 2

A. INITIATION AND TERMINATION CRITERIA FOR STAGE 2

NTMWD has initiated Stage 2, which may be initiated due to one or more of the following criteria is met:

General Criteria

- The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the declaration of Stage 2.
- One or more supply source(s) is interrupted, unavailable, or limited due to contamination, invasive species, equipment failure or other cause.
- The water supply system is unable to deliver needed supplies due to the failure or damage of major water system components.
- Part of the system has a shortage of supply or damage to equipment. (NTMWD may implement measures for only that portion of the system impacted.)
- A portion of the service area is experiencing an extreme weather event or power grid/supply disruptions.

Demand Criteria

 Water demand has exceeded or is expected to exceed 95% of maximum sustainable production or delivery capacity for an extended period.

Supply Criteria

- The combined storage in Lavon and Bois d'Arc Lake, as published by the TWDB, is less than
 - 55% of the combined conservation pool capacity during any of the months of April through October

- 45% of the combined conservation pool capacity during any of the months of November through March
- SRA has indicated that its Upper Basin water supplies used by NTMWD (Lake Tawakoni and/or Lake Fork) are in a Stage 2 drought.
- NTMWD is concerned that Lake Texoma, Jim Chapman Lake, the East Fork Water Reuse Project, the Main Stem Pump Station, and/or some other NTMWD water source may be limited in availability within the next three months.

Stage 2 may terminate when one or more of the following criteria is met:

General Criteria

- The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the termination of Stage 2.
- The circumstances that caused the initiation of Stage 2 no longer prevail.

Supply Criteria

- The combined storage in Lavon and Bois d'Arc Lake, as published by the TWDB, is greater than
 - 70% of the combined conservation pool capacity during any of the months of April through October
 - 60% of the combined conservation pool capacity during any of the months of November through March

B. GOAL FOR USE REDUCTION UNDER STAGE 2

The goal for water use reduction under Stage 2 is an annual reduction of 5% in the use that would have occurred in the absence of water resource management measures. Because discretionary water use is highly concentrated in the summer months, savings should be higher than 5% in summer to achieve an annual savings goal of 5%. If circumstances warrant, the Executive Director can set a goal for greater or less water use reduction.

C. WATER MANAGEMENT MEASURES AVAILABLE UNDER STAGE 2

The actions listed below are provided as potential measures to reduce water demand. NTMWD may choose to implement any or all of the available restrictions in Stage 2.

- Continue or initiate any actions available under the water conservation plan and Stage 1.
- Implement viable alternative water supply strategies.
- Requires notification to TCEQ by NTMWD. Require Member Cities and Customers (including indirect Customers) to initiate Stage 2 restrictions in their respective, independently adopted water resource management plans.
- Requires notification to TCEQ by NTMWD and/or Member Cities and Customers. Limit landscape watering with sprinklers or irrigation systems at each service address to once per week on designated days between April 1 and October 31. Limit landscape watering with

sprinklers or irrigation systems at each service address to once every other week on designated days between November 1 and March 31. Exceptions are as follows:

- New construction may be watered as necessary for 30 days from the installation of new landscape features.
- Foundation watering (within 2 feet), watering of new plantings (first year) of shrubs, and watering of trees (within a 10-foot radius of its trunk) for up to two hours on any day by a hand-held hose, a soaker hose, or a dedicated zone using a drip irrigation system, provided no runoff occurs.
- Athletic fields may be watered twice per week.
- o Locations using alternative sources of water supply only for irrigation may irrigate without day-of-the-week restrictions provided proper signage is employed to notify the public of the alternative water source(s) being used. However, irrigation using alternative sources of supply is subject to all other restrictions applicable to this stage. If the alternative supply source is a well, proper proof of well registration with your local water supplier (e.g., city, water supply corporation) is required. Other sources of water supply may not include imported treated water.
- An exemption is for drip irrigation systems from the designated outdoor water use day limited to no more than one day per week. Drip irrigation systems are, however, subject to all other restrictions applicable under this stage.
- Requires notification to TCEQ by Member Cities and Customers. Prohibit overseeding, sodding, sprigging, broadcasting or plugging with or watering, except for golf courses and athletic fields.
- Requires notification to TCEQ by NTMWD. Institute a mandated reduction in water deliveries to all Member Cities and Customers. Such a reduction will be distributed as required by Texas Water Code Section 11.039 (Appendix E).
- Requires notification to TCEQ by Member Cities and Customers and/or NTMWD. Initiate a rate surcharge for all water use over a certain level.
- Requires notification to TCEQ by Member Cities and Customers. Parks and golf courses using
 potable water for landscape watering are required to meet the same reduction goals and
 measures outlined in this stage. As an exception, golf course greens and tee boxes may be hand
 watered as needed.

3.03 WATER RESOURCE MANAGEMENT - STAGE 3

A. INITIATION AND TERMINATION CRITERIA FOR STAGE 3

NTMWD has initiated Stage 3, which may be initiated due to one or more of the following criteria is met:

General Criteria

 The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the declaration of Stage 3.

- One or more supply source(s) is interrupted, unavailable, or limited due to contamination, invasive species, equipment failure, or other cause.
- The water supply system is unable to deliver needed supplies due to the failure or damage of major water system components.
- Part of the system has a shortage of supply or damage to equipment. (NTMWD may implement measures for only that portion of the system impacted.)
- A portion of the service area is experiencing an extreme weather event or power grid/supply disruptions.

Demand Criteria

 Water demand has exceeded or is expected to exceed maximum sustainable production or delivery capacity for an extended period.

Supply Criteria

- The combined storage in Lavon and Bois d'Arc Lake, as published by the TWDB, is less than
 - 30% of the combined conservation pool capacity during any of the months of April through October
 - 20% of the combined conservation pool capacity during any of the months of November through March
- SRA has indicated that its Upper Basin water supplies used by NTMWD (Lake Tawakoni and/or Lake Fork) are in a drought and have significantly reduced supplies available to NTMWD.
- The supply from Lake Texoma, Jim Chapman Lake, the East Fork Water Reuse Project, the Main Stem Pump Station, and/or some other NTMWD water source has become limited in availability.

Stage 3 may terminate when one or more of the following criteria is met:

General Criteria

- The Executive Director, with the concurrence of the NTMWD Board of Directors, finds that conditions warrant the termination of Stage 3.
- Other circumstances that caused the initiation of Stage 3 no longer prevail.

Supply Criteria

- The combined storage in Lavon and Bois d'Arc Lake, as published by the TWDB, is greater than:
 - 55% of the combined conservation pool capacity during any of the months of April through October
 - 45% of the combined conservation pool capacity during any of the months of November through March

B. GOAL FOR USE REDUCTION UNDER STAGE 3

The goal for water use reduction under Stage 3 is an annual reduction of 30% in the use that would have occurred in the absence of water resource management measures, or the goal for water use reduction is whatever reduction is necessary. Because discretionary water use is highly concentrated in the summer months, savings should be higher than 30% in summer to achieve an annual savings goal of 30%. If circumstances warrant, the Executive Director can set a goal for greater or less water use reduction.

C. WATER MANAGEMENT MEASURES AVAILABLE UNDER STAGE 3

The actions listed below are provided as potential measures to reduce water demand. NTMWD may choose to implement any or all of the available restrictions in Stage 3.

- Continue or initiate any actions available under the water conservation plan and Stages 1 and 2.
- Implement viable alternative water supply strategies.
- Requires notification to TCEQ by NTMWD. Require Member Cities and Customers (including indirect Customers) to initiate Stage 3 restrictions in their respective, independently adopted water resource management plans.
- Requires notification to TCEQ by Member Cities and Customers. Initiate mandatory water use restrictions as follows:
 - Hosing and washing of paved areas, buildings, structures, windows or other surfaces is prohibited except by variance and performed by a professional service using high efficiency equipment.
 - Prohibit operation of ornamental fountains or ponds that use potable water except where supporting aquatic life.
- Requires notification to TCEQ by Member Cities and Customers. Prohibit new sod, overseeding, sodding, sprigging, broadcasting or plugging with or watering.
- Requires notification to TCEQ by Member Cities and Customers. Prohibit the use of potable water for the irrigation of new landscape.
- Requires notification to TCEQ by NTMWD and/or Member Cities and Customers. Prohibit all
 commercial and residential landscape watering, except foundations (within 2 feet) and trees
 (within a 10-foot radius of its trunk) may be watered for two hours one day per week with a
 hand-held hose, a soaker hose, or a dedicated zone using a drip irrigation system provided no
 runoff occurs. Drip irrigation systems are not exempt from this requirement.
- Requires notification to TCEQ by Member Cities and Customers. Prohibit washing of vehicles except at a commercial vehicle wash facility.
- Requires notification to TCEQ by Member Cities and Customers. Landscape watering of parks,
 golf courses, and athletic fields with potable water is prohibited. As an exception, golf course
 greens and tee boxes may be hand watered as needed. Variances may be granted by the water
 provider under special circumstances.
- Requires notification to TCEQ by Member Cities and Customers. Prohibit the filling, draining, and/or refilling of existing swimming pools, wading pools, Jacuzzi and hot tubs except to maintain structural integrity, proper operation and maintenance or to alleviate a public safety

[Entity Name]

- risk. Existing pools may add water to replace losses from normal use and evaporation. Permitting of new swimming pools, wading pools, Jacuzzi and hot tubs is prohibited.
- Requires notification to TCEQ by Member Cities and Customers. Prohibit the operation of
 interactive water features such as water sprays, dancing water jets, waterfalls, dumping
 buckets, shooting water cannons, inflatable pools, temporary splash toys or pools, slip-n-slides,
 or splash pads that are maintained for recreation.
- Requires notification to TCEQ by Member Cities and Customers. Require all commercial water users to reduce water use by a set percentage.
- Requires notification to TCEQ by NTMWD. Institute a mandated reduction in deliveries to all Member Cities and Customers. Such a reduction will be distributed as required by Texas Water Code Section 11.039.
- Requires notification to TCEQ by NTMWD and/or Member Cities and Customers. Initiate a rate surcharge over normal rates for all water use or for water use over a certain level

Appendix A List of References

The following appendix contains a list of references used throughout the plans.

APPENDIX A

LIST OF REFERENCES

- Texas Commission on Environmental Quality Water Conservation Implementation Report.
 https://www.tceq.texas.gov/assets/public/permitting/forms/20645.pdf
- Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter A, Rules 288.1 and 288.5, and Subchapter B, Rule 288.22, downloaded from http://texreg.sos.state.tx.us/public/readtac\$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=288, April 2023.
- Water Conservation Implementation Task Force: "Texas Water Development Board Report 362, Water Conservation Best Management Practices Guide," prepared for the Texas Water Development Board, Austin, November 2004.
- Texas Water Development Board, Texas Commission on Environmental Quality, Water Conservation Advisory Council: Guidance and Methodology for Reporting on Water Conservation and Water Use, December 2012
- Freese and Nichols, Inc.: Model Water Conservation Plan for NTMWD Members Cities and Customers, prepared for the North Texas Municipal Water District, Fort Worth, January 2019.
- Freese and Nichols, Inc.: Model Water Resource and Emergency Management Plan for NTMWD
 Members Cities and Customers, prepared for the North Texas Municipal Water District, Fort
 Worth, January 2019.
- 7. Freese and Nichols Inc, Alan Plummer Associates, Inc., CP & Y Inc., Cooksey Communications. "2021 Region C Water Plan"

Appendix B Texas Administrative Code Title 30 Chapter 288

The following appendix contains the Texas Administrative Code that regulates both water conservation and drought contingency plans. Prior to the code, a summary is given that outlines where each requirement is fulfilled within the plans.

APPENDIX B

TEXAS ADMINISTRATIVE CODE TITLE 30 CHAPTER 288

TCEQ rules governing development of water conservation plans are contained in Title 30, Chapter 288, Subchapter A of the Texas Administrative Code, which is included in this Appendix for reference.

The water conservation plan elements required by TCEQ water conservation rules that are covered in this water conservation plan are listed below.

Minimum Conservation Plan Requirements for Public Water Suppliers

- 288.2(a)(1)(A) Utility Profile Section 2
- 288.2(a)(1)(B) Record Management System Section 4
- 288.2(a)(1)(C) Specific, Quantified Goals Section 3
- 288.2(a)(1)(D) Accurate Metering Section 4
- 288.2(a)(1)(E) Universal Metering Section 4
- 288.2(a)(1)(F) Determination and Control of Water Loss Section 4
- 288.2(a)(1)(G) Public Education and Information Program Section 8
- 288.2(a)(1)(H) Non-Promotional Water Rate Structure Section 8
- 288.2(a)(1)(I) Reservoir System Operation Plan Section 6
- 288.2(a)(1)(J) Means of Implementation and Enforcement Section 7
- 288.2(a)(1)(K) Coordination with Regional Water Planning Group Section 7
- 288.2(c) Review and Update of Plan Section 7

Additional Requirements for Public Water Suppliers (Population over 5,000)

- 288.2(a)(2)(A) Leak Detection, Repair, and Water Loss Accounting Section 4
- 288.2(a)(2)(B) Requirement for Water Conservation Plans by Wholesale Customers Section 5

Minimum Conservation Plan Requirements for Wholesale Water Suppliers

- 288.5(1)(A) Description of Service Area Section 2
- 288.5(1)(B) Specific, Quantified Goals Section 3
- 288.5(1)(C) Measure and Account for Water Diverted Section 4
- 288.5(1)(D) Monitoring and Record Management Program Section 4
- 288.5(1)(E) Program of Metering and Leak Detection and Repair Section 4

- 288.5(1)(F) Requirement for Water Conservation Plans by Wholesale Customers Section 5
- 288.5(1)(G) Reservoir System Operation Plan Section 6
- 288.5(1)(H) Means of Implementation and Enforcement Section 7
- 288.5(1)(I) Documentation of Coordination with Regional Water Planning Group Section 7
- 288.5(3) Review and Update of Plan Section 7

TITLE 30

ENVIRONMENTAL QUALITY

PART 1

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CHAPTER 288

WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS,

GUIDELINES AND REQUIREMENTS

SUBCHAPTER A

WATER CONSERVATION PLANS

RULE §288.1

Definitions

The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise.

- (1) Agricultural or Agriculture--Any of the following activities:
- (A) cultivating the soil to produce crops for human food, animal feed, or planting seed or for the production of fibers;
- (B) the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or non-soil media by a nursery grower;
- (C) raising, feeding, or keeping animals for breeding purposes or for the production of food or fiber, leather, pelts, or other tangible products having a commercial value;
 - (D) raising or keeping equine animals;
 - (E) wildlife management; and
- (F) planting cover crops, including cover crops cultivated for transplantation, or leaving land idle for the purpose of participating in any governmental program or normal crop or livestock rotation procedure.
- (2) Agricultural use--Any use or activity involving agriculture, including irrigation.
- (3) Best management practices--Voluntary efficiency measures that save a quantifiable amount of water, either directly or indirectly, and that can be implemented within a specific time frame.
- (4) 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 water supply is made available for future or alternative uses.
- (5) Commercial use--The use of water by a place of business, such as a hotel, restaurant, or office building. This does not include multi-family residences or agricultural, industrial, or institutional users.
- (6) Drought contingency plan--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. A drought contingency plan may be a separate document identified as such or may be contained within another water management document(s).

- (7) Industrial use--The use of water in processes designed to convert materials of a lower order of value into forms having greater usability and commercial value, and the development of power by means other than hydroelectric, but does not include agricultural use.
- (8) Institutional use--The use of water by an establishment dedicated to public service, such as a school, university, church, hospital, nursing home, prison or government facility. All facilities dedicated to public service are considered institutional regardless of ownership.
- (9) Irrigation--The agricultural use of water for the irrigation of crops, trees, and pastureland, including, but not limited to, golf courses and parks which do not receive water from a public water supplier.
- (10) Irrigation water use efficiency--The percentage of that amount of irrigation water which is beneficially used by agriculture crops or other vegetation relative to the amount of water diverted from the source(s) of supply. Beneficial uses of water for irrigation purposes include, but are not limited to, evapotranspiration needs for vegetative maintenance and growth, salinity management, and leaching requirements associated with irrigation.
- (11) Mining use--The use of water for mining processes including hydraulic use, drilling, washing sand and gravel, and oil field re-pressuring.
- (12) Municipal use--The use of potable water provided by a public water supplier as well as the use of sewage effluent for residential, commercial, industrial, agricultural, institutional, and wholesale uses.
- (13) Nursery grower--A person engaged in the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or nonsoil media, who grows more than 50% of the products that the person either sells or leases, regardless of the variety sold, leased, or grown. For the purpose of this definition, grow means the actual cultivation or propagation of the product beyond the mere holding or maintaining of the item prior to sale or lease, and typically includes activities associated with the production or multiplying of stock such as the development of new plants from cuttings, grafts, plugs, or seedlings.
- (14) Pollution--The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to the public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.
- (15) Public water supplier--An individual or entity that supplies water to the public for human consumption.
- (16) Regional water planning group--A group established by the Texas Water Development Board to prepare a regional water plan under Texas Water Code §16.053.

- (17) Residential gallons per capita per day--The total gallons sold for residential use by a public water supplier divided by the residential population served and then divided by the number of days in the year.
- (18) Residential use--The use of water that is billed to single and multi-family residences, which applies to indoor and outdoor uses.
- (19) Retail public water supplier--An individual or entity that for compensation supplies water to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants when that water is not resold to or used by others.
- (20) Reuse--The authorized use for one or more beneficial purposes of use of water that remains unconsumed after the water is used for the original purpose of use and before that water is either disposed of or discharged or otherwise allowed to flow into a watercourse, lake, or other body of state-owned water.
- (21) Total use--The volume of raw or potable water provided by a public water supplier to billed customer sectors or nonrevenue uses and the volume lost during conveyance, treatment, or transmission of that water.
- (22) Total gallons per capita per day (GPCD)--The total amount of water diverted and/or pumped for potable use divided by the total permanent population divided by the days of the year. Diversion volumes of reuse as defined in this chapter shall be credited against total diversion volumes for the purposes of calculating GPCD for targets and goals.
- (23) Water conservation coordinator--The person designated by a retail public water supplier that is responsible for implementing a water conservation plan.
- (24) Water conservation plan--A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s).
- (25) Wholesale public water supplier--An individual or entity that for compensation supplies water to another for resale to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants as an incident of that employee service or tenancy when that water is not resold to or used by others, or an individual or entity that conveys water to another individual or entity, but does not own the right to the water which is conveyed, whether or not for a delivery fee.
- (26) Wholesale use--Water sold from one entity or public water supplier to other retail water purveyors for resale to individual customers.

Source Note: The provisions of this §288.1 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25

TexReg 3544; amended to be effective August 15, 2002, 27 TexReg 7146; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective January 10, 2008, 33 TexReg 193; amended to be effective December 6, 2012, 37 TexReg 9515; amended to be effective August 16, 2018, 43 TexReg 5218

TITLE 30

ENVIRONMENTAL QUALITY

PART 1

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CHAPTER 288

WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS,

GUIDELINES AND REQUIREMENTS

SUBCHAPTER A

WATER CONSERVATION PLANS

RULE §288.2

Water Conservation Plans for Municipal Uses by Public Water Suppliers

- (a) A water conservation plan for municipal water use by public water suppliers must provide information in response to the following. If the plan does not provide information for each requirement, the public water supplier shall include in the plan an explanation of why the requirement is not applicable.
- (1) Minimum requirements. All water conservation plans for municipal uses by public water suppliers must include the following elements:
- (A) a utility profile in accordance with the Texas Water Use Methodology, including, but not limited to, information regarding population and customer data, water use data (including total gallons per capita per day (GPCD) and residential GPCD), water supply system data, and wastewater system data;
- (B) a record management system which allows for the classification of water sales and uses into the most detailed level of water use data currently available to it, including, if possible, the sectors listed in clauses (i) (vi) of this subparagraph. Any new billing system purchased by a public water supplier must be capable of reporting detailed water use data as described in clauses (i) (vi) of this subparagraph:
 - (i) residential;
 - (I) single family;
 - (II) multi-family;
 - (ii) commercial;
 - (iii) institutional;
 - (iv) industrial;
 - (v) agricultural; and,
 - (vi) wholesale.
- (C) specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use in total GPCD and residential GPCD. The goals established by a public water supplier under this subparagraph are not enforceable;

- (D) metering device(s), within an accuracy of plus or minus 5.0% in order to measure and account for the amount of water diverted from the source of supply;
- (E) a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement;
- (F) measures to determine and control water loss (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections; abandoned services; etc.);
 - (G) a program of continuing public education and information regarding water conservation;
- (H) a water rate structure which is not "promotional," i.e., a rate structure which is cost-based and which does not encourage the excessive use of water;
- (I) a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin in order to optimize available water supplies; and
 - (J) a means of implementation and enforcement which shall be evidenced by:
- (i) a copy of the ordinance, resolution, or tariff indicating official adoption of the water conservation plan by the water supplier; and
- (ii) a description of the authority by which the water supplier will implement and enforce the conservation plan; and
- (K) documentation of coordination with the regional water planning groups for the service area of the public water supplier in order to ensure consistency with the appropriate approved regional water plans.
- (2) Additional content requirements. Water conservation plans for municipal uses by public drinking water suppliers serving a current population of 5,000 or more and/or a projected population of 5,000 or more within the next ten years subsequent to the effective date of the plan must include the following elements:
- (A) a program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system;
- (B) a requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in this chapter. If the customer intends to resell

the water, the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of this chapter.

- (3) Additional conservation strategies. Any combination of the following strategies shall be selected by the water supplier, in addition to the minimum requirements in paragraphs (1) and (2) of this subsection, if they are necessary to achieve the stated water conservation goals of the plan. The commission may require that any of the following strategies be implemented by the water supplier if the commission determines that the strategy is necessary to achieve the goals of the water conservation plan:
- (A) conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;
- (B) adoption of ordinances, plumbing codes, and/or rules requiring water-conserving plumbing fixtures to be installed in new structures and existing structures undergoing substantial modification or addition;
- (C) a program for the replacement or retrofit of water-conserving plumbing fixtures in existing structures;
 - (D) reuse and/or recycling of wastewater and/or graywater;
- (E) a program for pressure control and/or reduction in the distribution system and/or for customer connections;
 - (F) a program and/or ordinance(s) for landscape water management;
 - (G) a method for monitoring the effectiveness and efficiency of the water conservation plan; and
- (H) any other water conservation practice, method, or technique which the water supplier shows to be appropriate for achieving the stated goal or goals of the water conservation plan.
- (b) A water conservation plan prepared in accordance with 31 TAC §363.15 (relating to Required Water Conservation Plan) of the Texas Water Development Board and substantially meeting the requirements of this section and other applicable commission rules may be submitted to meet application requirements in accordance with a memorandum of understanding between the commission and the Texas Water Development Board.
- (c) A public water supplier for municipal use shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or

updated information. The public water supplier for municipal use shall review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

Source Note: The provisions of this §288.2 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective December 6, 2012, 37 TexReg 9515

TITLE 30

ENVIRONMENTAL QUALITY

PART 1

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CHAPTER 288

WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS,

GUIDELINES AND REQUIREMENTS

SUBCHAPTER A

WATER CONSERVATION PLANS

RULE §288.5

Water Conservation Plans for Wholesale Water Suppliers

A water conservation plan for a wholesale water supplier must provide information in response to each of the following paragraphs. If the plan does not provide information for each requirement, the wholesale water supplier shall include in the plan an explanation of why the requirement is not applicable.

- (1) Minimum requirements. All water conservation plans for wholesale water suppliers must include the following elements:
- (A) a description of the wholesaler's service area, including population and customer data, water use data, water supply system data, and wastewater data;
- (B) specific, quantified five-year and ten-year targets for water savings including, where appropriate, target goals for municipal use in gallons per capita per day for the wholesaler's service area, maximum acceptable water loss, and the basis for the development of these goals. The goals established by wholesale water suppliers under this subparagraph are not enforceable;

- (C) a description as to which practice(s) and/or device(s) will be utilized to measure and account for the amount of water diverted from the source(s) of supply;
- (D) a monitoring and record management program for determining water deliveries, sales, and losses;
- (E) a program of metering and leak detection and repair for the wholesaler's water storage, delivery, and distribution system;
- (F) a requirement in every water supply contract entered into or renewed after official adoption of the water conservation plan, and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements of this chapter. If the customer intends to resell the water, then the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with applicable provisions of this chapter;
- (G) a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin. The reservoir systems operations plans shall include optimization of water supplies as one of the significant goals of the plan;
- (H) a means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating official adoption of the water conservation plan by the water supplier; and a description of the authority by which the water supplier will implement and enforce the conservation plan; and
- (I) documentation of coordination with the regional water planning groups for the service area of the wholesale water supplier in order to ensure consistency with the appropriate approved regional water plans.
- (2) Additional conservation strategies. Any combination of the following strategies shall be selected by the water wholesaler, in addition to the minimum requirements of paragraph (1) of this section, if they are necessary in order to achieve the stated water conservation goals of the plan. The commission may require by commission order that any of the following strategies be implemented by the water supplier if the commission determines that the strategies are necessary in order for the conservation plan to be achieved:
- (A) conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;
- (B) a program to assist agricultural customers in the development of conservation pollution prevention and abatement plans;
 - (C) a program for reuse and/or recycling of wastewater and/or graywater; and
- (D) any other water conservation practice, method, or technique which the wholesaler shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

(3) Review and update requirements. The wholesale water supplier shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. A wholesale water supplier shall review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

Source Note: The provisions of this §288.5 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective December 6, 2012, 37 TexReg 9515

APPENDIX B

TEXAS ADMINISTRATIVE CODE TITLE 30 CHAPTER 288

TCEQ rules governing development of water conservation plans are contained in Title 30, Chapter 288, Subchapter A of the Texas Administrative Code, which is included in this Appendix for reference.

The water conservation plan elements required by TCEQ water conservation rules that are covered in this drought contingency plan are listed below.

Minimum Drought Contingency Plan Requirements for Public Water Suppliers

- 288.20(a)(1)(A) Provisions to Inform Public and Provide Opportunity for Public Input Section
- 288.20(a)(1)(B) Program for Continuing Public Education and Information Section 2
- 288.20(a)(1)(C) -Coordination with Regional Water Planning Groups Section 2
- 288.20(a)(1)(D) Description of Information to Be Monitored and Criteria for the Initiation and Termination of Water Resource Management Stages Sections 2
- 288.20(a)(1)(E) Stages for Implementation of Measures in Response to Situations Section 3
- 288.20(a)(1)(F) Specific, Quantified Targets for Water Use Reductions During Water Shortages Section 3
- 288.20(a)(1)(G) Specific Water Supply or Water Demand Measures to Be Implemented at Each Stage of the Plan – Section 3
- 288.20(a)(1)(H) Procedures for Initiation and Termination of Drought Contingency and Water Emergency Response Stages – Section 2
- 288.20(a)(1)(l) Description of Procedures to Be Followed for Granting Variances to the Plan –
 Section 2
- 288.20(a)(1)(J) Procedures for Enforcement of Mandatory Water Use Restrictions Section 2
- 288.20(b) TCEQ Notification of Implementation of Mandatory Provisions Sections 2 and 3
- 288.20(c) Review of Drought Contingency and Water Emergency Response Plan Every Five (5)
 Years Section 2

Minimum Drought Contingency Plan Requirements for Wholesale Water Suppliers

- 288.22(a)(1) Provisions to Inform the Public and Provide Opportunity for Public Input Section 2
- 288.22(a)(2) Coordination with the Regional Water Planning Groups Section 2
- 288.22(a)(3) Criteria for Initiation and Termination of Drought Stages Section 3
- 288.22(a)(4) Drought and Emergency Response Stages Section 3
- 288.22(a)(5) Procedures for Initiation and Termination of Drought Stages Section 2

- (F) The drought contingency plan must include specific, quantified targets for water use reductions to be achieved during periods of water shortage and drought. The entity preparing the plan shall establish the targets. The goals established by the entity under this subparagraph are not enforceable.
- (G) The drought contingency plan must include the specific water supply or water demand management measures to be implemented during each stage of the plan including, but not limited to, the following:
 - (i) curtailment of non-essential water uses; and
- (ii) utilization of alternative water sources and/or alternative delivery mechanisms with the prior approval of the executive director as appropriate (e.g., interconnection with another water system, temporary use of a non-municipal water supply, use of reclaimed water for non-potable purposes, etc.).
- (H) The drought contingency plan must include the procedures to be followed for the initiation or termination of each drought response stage, including procedures for notification of the public.
 - (I) The drought contingency plan must include procedures for granting variances to the plan.
- (J) The drought contingency plan must include procedures for the enforcement of mandatory water use restrictions, including specification of penalties (e.g., fines, water rate surcharges, discontinuation of service) for violations of such restrictions.
- (2) Privately-owned water utilities. Privately-owned water utilities shall prepare a drought contingency plan in accordance with this section and incorporate such plan into their tariff.
- (3) Wholesale water customers. Any water supplier that receives all or a portion of its water supply from another water supplier shall consult with that supplier and shall include in the drought contingency plan appropriate provisions for responding to reductions in that water supply.
- (b) A wholesale or retail water supplier shall notify the executive director within five business days of the implementation of any mandatory provisions of the drought contingency plan.
- (c) The retail public water supplier shall review and update, as appropriate, the drought contingency plan, at least every five years, based on new or updated information, such as the adoption or revision of the regional water plan.

Source Note: The provisions of this §288.20 adopted to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384

TITLE 30

ENVIRONMENTAL QUALITY

PART 1

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CHAPTER 288

WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS,

GUIDELINES AND REQUIREMENTS

SUBCHAPTER B

DROUGHT CONTINGENCY PLANS

RULE §288.22

Drought Contingency Plans for Wholesale Water Suppliers

- (a) A drought contingency plan for a wholesale water supplier must include the following minimum elements.
- (1) Preparation of the plan shall include provisions to actively inform the public and to affirmatively provide opportunity for user input in the preparation of the plan and for informing wholesale customers about the plan. Such acts may include, but are not limited to, having a public meeting at a time and location convenient to the public and providing written notice to the public concerning the proposed plan and meeting.
- (2) The drought contingency plan must document coordination with the regional water planning groups for the service area of the wholesale public water supplier to ensure consistency with the appropriate approved regional water plans.
- (3) The drought contingency plan must include a description of the information to be monitored by the water supplier and specific criteria for the initiation and termination of drought response stages, accompanied by an explanation of the rationale or basis for such triggering criteria.
- (4) The drought contingency plan must include a minimum of three drought or emergency response stages providing for the implementation of measures in response to water supply conditions during a repeat of the drought-of-record.
- (5) The drought contingency plan must include the procedures to be followed for the initiation or termination of drought response stages, including procedures for notification of wholesale customers regarding the initiation or termination of drought response stages.

- (6) The drought contingency plan must include specific, quantified targets for water use reductions to be achieved during periods of water shortage and drought. The entity preparing the plan shall establish the targets. The goals established by the entity under this paragraph are not enforceable.
- (7) The drought contingency plan must include the specific water supply or water demand management measures to be implemented during each stage of the plan including, but not limited to, the following:
- (A) pro rata curtailment of water deliveries to or diversions by wholesale water customers as provided in Texas Water Code, §11.039; and
- (B) utilization of alternative water sources with the prior approval of the executive director as appropriate (e.g., interconnection with another water system, temporary use of a non-municipal water supply, use of reclaimed water for non-potable purposes, etc.).
- (8) The drought contingency plan must include a provision in every wholesale water contract entered into or renewed after adoption of the plan, including contract extensions, that in case of a shortage of water resulting from drought, the water to be distributed shall be divided in accordance with Texas Water Code, §11.039.
- (9) The drought contingency plan must include procedures for granting variances to the plan.
- (10) The drought contingency plan must include procedures for the enforcement of any mandatory water use restrictions including specification of penalties (e.g., liquidated damages, water rate surcharges, discontinuation of service) for violations of such restrictions.
- (b) The wholesale public water supplier shall notify the executive director within five business days of the implementation of any mandatory provisions of the drought contingency plan.
- (c) The wholesale public water supplier shall review and update, as appropriate, the drought contingency plan, at least every five years, based on new or updated information, such as adoption or revision of the regional water plan.

Source Note: The provisions of this §288.22 adopted to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384

Appendix C TCEQ Water Utility Profile

The following appendix contains the form TCEQ-10218 and/or TCEQ-20162.

Appendix D NTMWD Member City and Customer Annual Water Conservation Report

The following appendix contains a blank copy of the NTMWD Member City and Customer Annual Water Conservation Report. This is updated and reviewed by NTMWD on an annual basis.

Appendix E

TCEQ Water Conservation Implementation Report

Appendix F

Letters to Regional Water Planning Group and NTMWD

[Enter	Date
LITTE	Dutt

Region C Water Planning Group c/o Trinity River Authority P.O. Box 60 Arlington, TX 76004

Dear Chair:

Enclosed please find a copy of the Water Conservation and Water Resource and Emergency Management Plan for [Entity Name]. I am submitting a copy of this plan to the Region C Water Planning Group in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules. The plans were adopted on [Enter date of adoption].

Sincerely,

[Entity Contact Name]

[Entity Name]

Region D Water Planning Group c/o Riverbend Water Resources District 228 Texas Avenue Suite A New Boston, TX 75570

Dear Chair:

[Enter Date]

Enclosed please find a copy of the Water Conservation and Water Resource and Emergency Management Plan for [Entity Name]. I am submitting a copy of this plan to the Region C Water Planning Group in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules. The plans were adopted on [Enter date of adoption].

Sincerely,

[Entity Contact Name]

[Entity Name]

Appendix G

Adoption of Plans

Municipal Ordinance Adopting Water Conservation Plan

Ordinance No. [Enter Ordinance Number]

AN ORDINANCE ADOPTING A WATER CONSERVATION PLAN FOR THE CITY OF [Entity Name] TO PROMOTE RESPONSIBLE USE OF WATER AND TO PROVIDE FOR PENALTIES AND/OR THE DISCONNECTION OF WATER SERVICE FOR NONCOMPLIANCE WITH THE PROVISIONS OF THE WATER CONSERVATION PLAN.

WHEREAS, the City of [Entity Name], Texas (the "City"), recognizes that the amount of water available to its water customers is limited; and

WHEREAS, the City recognizes that due to natural limitations, drought conditions, system failures and other acts of God which may occur, the City cannot guarantee an uninterrupted water supply for all purposes at all times; and

WHEREAS, the Water Code and the regulations of the Texas Commission on Environmental Quality (the "Commission") require that the City adopt a Water Conservation Plan; and

WHEREAS, the City has determined an urgent need in the best interest of the public to adopt a Water Conservation Plan; and

WHEREAS, pursuant to Chapter 54 of the Local Government Code, the City is authorized to adopt such Ordinances necessary to preserve and conserve its water resources; and

WHEREAS, the City Council of the City of [Entity Name] desires to adopt the North Texas Municipal Water District (the "NTMWD") Model Water Conservation Plan as official City policy for the conservation of water.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF [Entity Name] THAT:

Section 1. The City Council hereby approves and adopts the NTMWD Model Water Conservation Plan (the "Plan"), attached hereto as Addendum A, as if recited verbatim herein. The City commits to implement the requirements and procedures set forth in the adopted Plan.

Section 2. Any customer, defined pursuant to 30 Tex. Admin. Code Chapter 291, failing to comply with the provisions of the Plan shall be subject to a fine of up to two thousand dollars (\$2,000.00) and/or discontinuance of water service by the City. Proof of a culpable mental state is not required for a conviction of an offense under this section. Each day a customer fails to comply with the Plan is a separate violation. The City's authority to seek injunctive or other civil relief available under the law is not limited by this section.

Section 3. The City Council does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting adopting this Ordinance was posted at a designated place convenient to the public for the time required by law preceding the meeting, that such place of posting was readily accessible at all times to the general public, and that all of the foregoing was done as required by law at all times during which this Ordinance and the subject matter thereof has been discussed, considered and formally acted upon. The City Council further ratifies, approves and confirms such written notice and the posting thereof.

Section 4. Should any paragraph, sentence, clause, phrase or word of this Ordinance be declared unconstitutional or invalid for any reason, the remainder of this Ordinance shall not be affected.

Section 5. The City Manager or his designee is hereby directed to file a copy of the Plan and this Ordinance with the Commission in accordance with Title 30, Chapter 288 of the Texas Administrative Code.

Section 6. The City Secretary is hereby authorized and directed to cause publication of the descriptive caption of this ordinance as an alternative method of publication provided by law.

Section 7. Ordinance No. [Enter Ordinance Number], adopted on [Date of Ordinance], is hereby repealed.

Passed by the City Council on this [Day] day of [Month], [Year]		
Mayor		
Attest:		
City Secretary		

Municipal Utility District Order

Adopting Water Conservation Plan

Order No. [NUMBER]

AN ORDER ADOPTING A WATER CONSERVATION PLAN FOR THE [Entity Name] MUNICIPAL UTILITY DISTRICT TO PROMOTE THE RESPONSIBLE USE OF WATER AND TO PROVIDE FOR PENALTIES AND/OR THE DISCONNECTION OF WATER SERVICE FOR NONCOMPLIANCE WITH THE PROVISIONS OF THE WATER CONSERVATION PLAN.

WHEREAS, the [Entity Name] Municipal Utility District (the "District"), recognizes that the amount of water available to its water customers is limited; and

WHEREAS, the District recognizes that due to natural limitations, drought conditions, system failures and other acts of God which may occur, the District cannot guarantee an uninterrupted water supply for all purposes at all times; and

WHEREAS, the Water Code and the regulations of the Texas Commission on Environmental Quality (the "Commission") require that the District adopt a Water Conservation Plan; and

WHEREAS, the District has determined an urgent need in the best interest of the public to adopt a Water Conservation Plan; and

WHEREAS, pursuant to Chapter 49 of the Water Code, the District is authorized to adopt such policies necessary to accomplish the purposes for which it was created, including but not limited to the preservation and conservation of water resources; and

WHEREAS, the Board of Directors of the District desires to adopt the North Texas Municipal Water District (the "NTMWD") Model Water Conservation Plan as official District policy for the conservation of water.

NOW THEREFORE, BE IT ORDERED BY THE BOARD OF DIRECTORS OF THE [Entity Name] MUNICIPAL UTILITY DISTRICT THAT:

Section 1. The Board of Directors hereby approves and adopts the NTMWD Model Water Conservation Plan (the "Plan"), attached hereto as Addendum A, as if recited verbatim herein. The District commits to implement the requirements and procedures set forth in the adopted Plan.

Section 2. Any customer, defined pursuant to 30 Tex. Admin. Code Chapter 291, failing to comply with the provisions of the Plan shall be subject to a monetary fine as allowed by law, and/or discontinuance of water service by the District. Proof of a culpable mental state is not required for a conviction of an offense under this section. Each day a customer fails to comply with the Plan is a separate violation. The District's authority to seek injunctive or other civil relief available under the law is not limited by this section.

Section 3. The Board of Directors does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting adopting this Order was posted at a designated place convenient to the public for the time required by law preceding the meeting, that such place of posting was readily accessible at all times to the general public, and that all of the foregoing was done as required by law at all times during which this Order and the subject matter thereof has been discussed, considered and formally acted upon. The Board of Directors further ratifies, approves and confirms such written notice and the posting thereof.

Section 4. The General Manager or his designee is hereby directed to file a copy of the Plan and this Ordinance with the Commission in accordance with Title 30, Chapter 288 of the Texas Administrative Code.

Section 5. Should any paragraph, sentence, clause, phrase or word of this Order be declared unconstitutional or invalid for any reason, the remainder of this Order shall not be affected.

Section 6. {If Applicable} Order No. [Number], adopted on [Date], is hereby repealed.

Approved and adopted by the Board of Directo	rs on this [Day] day of [Day], [Day].
President, Board of Directors	
Attest:	
Secretary	

Special Utility District Order

Adopting Water Conservation Plan

Order No. [NUMBER]

AN ORDER ADOPTING A WATER CONSERVATION PLAN FOR THE [Entity Name] SPECIAL UTILITY DISTRICT TO PROMOTE THE RESPONSIBLE USE OF WATER AND TO PROVIDE FOR PENALTIES AND/OR THE DISCONNECTION OF WATER SERVICE FOR NONCOMPLIANCE WITH THE PROVISIONS OF THE WATER CONSERVATION PLAN.

WHEREAS, the [Entity Name] Special Utility District (the "District"), recognizes that the amount of water available to its water customers is limited; and

WHEREAS, the District recognizes that due to natural limitations, drought conditions, system failures and other acts of God which may occur, the District cannot guarantee an uninterrupted water supply for all purposes at all times; and

WHEREAS, the Water Code and the regulations of the Texas Commission on Environmental Quality (the "Commission") require that the District adopt a Water Conservation Plan; and

WHEREAS, the District has determined an urgent need in the best interest of the public to adopt a Water Conservation Plan; and

WHEREAS, pursuant to Chapter 65 of the Water Code, the District is authorized to adopt such policies necessary to accomplish the purposes for which it was created, including but not limited to the preservation and conservation of water resources; and

WHEREAS, the Board of Directors of the District desires to adopt the North Texas Municipal Water District (the "NTMWD") Model Water Conservation Plan as official District policy for the conservation of water.

NOW THEREFORE, BE IT ORDERED BY THE BOARD OF DIRECTORS OF THE [Entity Name] SPECIAL UTILITY DISTRICT THAT:

Section 1. The Board of Directors hereby approves and adopts the NTMWD Model Water Conservation Plan (the "Plan"), attached hereto as Addendum A, as if recited verbatim herein. The District commits to implement the requirements and procedures set forth in the adopted Plan.

Section 2. Any customer, defined pursuant to 30 Tex. Admin. Code Chapter 291, failing to comply with the provisions of the Plan shall be subject to a monetary fine as allowed by law, and/or discontinuance of water service by the District. Proof of a culpable mental state is not required for a conviction of an offense under this section. Each day a customer fails to comply with the Plan is a separate violation. The District's authority to seek injunctive or other civil relief available under the law is not limited by this section.

Section 3. The Board of Directors does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting adopting this Order was posted at a designated place convenient to the public for the time required by law preceding the meeting, that such place of posting was readily accessible at all times to the general public, and that all of the foregoing was done as required by law at all times during which this Order and the subject matter thereof has been discussed, considered and formally acted upon. The Board of Directors further ratifies, approves and confirms such written notice and the posting thereof.

Section 4. The General Manager or his designee is hereby directed to file a copy of the Plan and this Ordinance with the Commission in accordance with Title 30, Chapter 288 of the Texas Administrative Code.

Section 5. Should any paragraph, sentence, clause, phrase or word of this Order be declared unconstitutional or invalid for any reason, the remainder of this Order shall not be affected.

Section 6. {If Applicable} Order No. [NUMBER], adopted on [Date], is hereby repealed.

Approved and adopted by the Board of Direct	ors on this [Day] day of [Day], [L
President, Board of Directors	_
Attest:	
	_
Secretary	

Water Supply Corporation Resolution Adopting Water Conservation Plan

Resolution No. [NUMBER]

A RESOLUTION ADOPTING A WATER CONSERVATION PLAN FOR THE [Entity Name] WATER SUPPLY CORPORATION TO PROMOTE THE RESPONSIBLE USE OF WATER AND TO PROVIDE FOR PENALTIES AND/OR THE DISCONNECTION OF WATER SERVICE FOR NONCOMPLIANCE WITH THE PROVISIONS OF THE WATER CONSERVATION PLAN.

WHEREAS, the [Entity Name] Water Supply Corporation (the "WSC"), recognizes that the amount of water available to its water customers is limited; and

WHEREAS, the WSC recognizes that due to natural limitations, drought conditions, system failures and other acts of God which may occur, the WSC cannot guarantee an uninterrupted water supply for all purposes at all times; and

WHEREAS, the Water Code and the regulations of the Texas Commission on Environmental Quality (the "Commission") require that the WSC adopt a Water Conservation Plan; and

WHEREAS, the WSC has determined an urgent need in the best interest of the public to adopt a Water Conservation Plan; and

WHEREAS, pursuant to Chapter 67 of the Water Code, the WSC is authorized to adopt such policies necessary to preserve and conserve its water resources; and

WHEREAS, the Board of Directors of the WSC desires to adopt the North Texas Municipal Water District (the "NTMWD") Model Water Conservation Plan as official WSC policy for the conservation of water.

NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE [Entity Name] WATER SUPPLY CORPORATION THAT:

Section 1. The Board of Directors hereby approves and adopts the NTMWD Model Water Conservation Plan (the "Plan"), attached hereto as Addendum A, as if recited verbatim herein. The WSC commits to implement the requirements and procedures set forth in the adopted Plan.

Section 2. Any customer, defined pursuant to 30 Tex. Admin. Code Chapter 291, failing to comply with the provisions of the Plan shall be subject to a monetary fine as allowed by law, and/or discontinuance of water service by the WSC. Proof of a culpable mental state is not required for a conviction of an offense under this section. Each day a customer fails to comply with the Plan is a separate violation. The WSC's authority to seek injunctive or other civil relief available under the law is not limited by this section.

Section 3. The Board of Directors does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting adopting this Resolution was posted at a designated place convenient to the public for the time required by law preceding the meeting, that such place of posting

was readily accessible at all times to the general public, and that all of the foregoing was done as required by law at all times during which this Resolution and the subject matter thereof has been discussed, considered and formally acted upon. The Board of Directors further ratifies, approves and confirms such written notice and the posting thereof.

Section 4. The General Manager or his designee is hereby directed to file a copy of the Plan and this Ordinance with the Commission in accordance with Title 30, Chapter 288 of the Texas Administrative Code. Further, the Board of Directors hereby authorizes the General Manager or his designee to file an amendment to the WSC's tariff to incorporate the Plan therein.

Section 5. Should any paragraph, sentence, clause, phrase or word of this Resolution be declared unconstitutional or invalid for any reason, the remainder of this Resolution shall not be affected.

Section 6. {If Applicable} Resolution No. [NUMBER], adopted on [Date], is hereby repealed.

Approved and adopted by the Board of Directors on this [Day] day of [Day], [Day].	
President, Board of Directors	
Attest:	
Secretary	

Appendix H

Illegal Water Connections and Theft of Water

APPENDIX H

ILLEGAL WATER CONNECTIONS AND THEFT OF WATER MUNICIPAL ORDINANCE

PERTAINING TO ILLEGAL WATER CONNECTIONS AND THEFT OF WATER

Ordinance No
AN ORDINANCE PERTAINING TO ILLEGAL WATER CONNECTIONS AND/OR THE THEFT OF WATER RELATED TO THE WATER SUPPLY FOR THE CITY OF
WHEREAS, the City of, Texas (the "City") recognizes that the amount of water available to its water customers is limited; and
WHEREAS, pursuant to Chapter 54 of the Local Government Code, the City is authorized to adopt such policies necessary to preserve and conserve available water supplies; and
WHEREAS, the City seeks to adopt an ordinance pertaining to illegal water connections and theft of water.
NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF THAT:
Section 1. The City Council hereby approves and adopts this Ordinance as described herein.
Section 2. A person commits an offense of theft of water by any of the following actions:
(a) A person may not knowingly tamper, connect to, or alter any component of the City's water system including valves, meters, meter boxes, lids, hydrants, lines, pump stations, ground storage tanks and elevated storage tanks. This shall include direct or indirect efforts to initiate or restore water service without the approval of the City.
(b) If, without the written consent of the City Manager or the City Manager's designee, the person knowingly causes, suffers or allows the initiation or restoration of water service to the property after termination of service(s). For purposes of this section, it shall be assumed that the owner, occupant, or person in control of the property caused, suffered, or allowed the unlawful initiation or restoration of service(s).
(c) A person may not knowingly make or cause a false report to be made to the City of a reading of a water meter installed for metered billing.
(d) A person commits a separate offense each day that the person performs an act prohibited by

this section or fails to perform an act required by this section.

Section 3. An offense under this Ordinance is a Class C misdemeanor punishable by a fine of up to two thousand dollars (\$2,000.00) and/or discontinuance of water service by the City.

Section 4. The City Council does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting considering this Ordinance was posted at a designated place convenient to the public for the time required by law preceding the meeting, that such place of posting was readily accessible at all times to the general public, and that all of the foregoing was done as required by law at all times during which this Ordinance, and the subject matter thereof, has been discussed, considered and formally acted upon. The City Council further ratifies, approves and confirms such written notice and the posting thereof.

Section 5. Should any paragraph, sentence, clause, phrase or word of this Ordinance be declared unconstitutional or invalid for any reason, the remainder of this Ordinance shall not be affected.

Section 6. The City Secretary is hereby authorized and directed to cause publication of the descriptive caption of this ordinance as an alternative method of publication provided by law.

Section 7. {If Applicable} Ordinance No. ______, adopted on ______, is hereby repealed.

Passed by the City Council on this ____ day of _____, ___.

Mayor

Attest:

City Secretary

Municipal Utility District Order

Municipal Utility District Order
Pertaining to Illegal Water Connections and Theft of Water

Order No.

AN ORDER PERTAINING TO ILLEGA	AL WATER CONNECTIONS AND/OR THE THEFT OF WATER RELATED
TO THE WATER SUPPLY FOR THE _	MUNICIPAL UTILITY DISTRICT.

WHEREAS, the Municipal Utility District (the "District"), recognizes that the amount of water available to its water customers is limited; and
WHEREAS, pursuant to Chapter 49 of the Water Code, the District is authorized to adopt such policies necessary to accomplish the purposes for which it was created, including but not limited to the preservation and conservation of available water supplies; and
WHEREAS, the District seeks to adopt an order pertaining to illegal water connections and theft of water.
NOW THEREFORE, BE IT ORDERED BY THE BOARD OF DIRECTORS OF THE MUNICIPAL UTILITY DISTRICT THAT:
Section 1. The Board of Directors hereby approves and adopts this Order as described herein.
Section 2. A person commits an offense of theft of water by any of the following actions:
(a) A person may not knowingly tamper, connect to, or alter any component of the District's water system including valves, meters, meter boxes, lids, hydrants, lines, pump stations, ground storage tanks, and elevated storage tanks. This shall include direct or indirect efforts to initiate or restore water service without the approval of the District.
(b) If, without the written consent of the District, the person knowingly causes, suffers or allows the initiation or restoration of water service to the property after termination of service(s). For purposes of this section, it shall be assumed that the owner, occupant, or person in control of the property caused, suffered, or allowed the unlawful initiation or restoration of service(s).
(c) A person may not knowingly make or cause a false report to be made to the District of a reading of a water meter installed for metered billing.
(d) A person commits a separate offense each day that the person performs an act prohibited by this section or fails to perform an act required by this section.
Section 3. An offense under this Order is punishable in accordance with the District's rules and policies regarding rates and may result in disconnection of service.
Section 4. The Board of Directors does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting considering this Order was posted at a designated place convenient to the public for the time required by law preceding this meeting, that such place of posting was readily accessible at all times to the general public, and that all of the foregoing was done as required by law at all times during which this Order, and the subject matter thereof has been discussed, considered and formally acted upon. The Board of Directors further ratifies, approves and confirms such written notice and the posting thereof.
Section 5 . Should any paragraph, sentence, clause, phrase or word of this Order be declared unconstitutional or invalid for any reason, the remainder of this Order shall not be affected.
Section 6. {If Applicable} Order No, adopted on, is hereby repealed.

Approved and adopted by the Board of Directors on this day of
President, Board of Directors
Attest:
Secretary
Special Utility District Order Pertaining to Illegal Water Connections and Theft of Water
Order No
AN ORDER PERTAINING TO ILLEGAL WATER CONNECTIONS AND/OR THE THEFT OF WATER RELATED TO THE WATER SUPPLY FOR THE SPECIAL UTILITY DISTRICT.
WHEREAS, the Special Utility District (the "District"), recognizes that the amount of water available to its water customers is limited; and
WHEREAS, pursuant to Chapter 65 of the Water Code, the District is authorized to adopt such policies necessary to preserve and conserve available water supplies; and
WHEREAS, the District seeks to adopt an order pertaining to illegal water connections and theft of water.

NOW THEREFORE, BE IT ORDERED BY THE BOARD OF DIRECTORS OF THE SPECIAL UTILITY DISTRICT THAT:
Section 1. The Board of Directors hereby approves and adopts this Order as described herein.
Section 2. A person commits an offense of theft of water by any of the following actions:
(a) A person may not knowingly tamper, connect to, or alter any component of the District's water system including valves, meters, meter boxes, lids, hydrants, lines, pump stations, ground storage tanks, and elevated storage tanks. This shall include direct or indirect efforts to initiate or restore water service without the approval of the District.
(b) If, without the written consent of the District, the person knowingly causes, suffers or allows the initiation or restoration of water service to the property after termination of service(s). For purposes of this section, it shall be assumed that the owner, occupant, or person in control of the property caused, suffered, or allowed the unlawful initiation or restoration of service(s).
(c) A person may not knowingly make or cause a false report to be made to the District of a reading of a water meter installed for metered billing.
(d) A person commits a separate offense each day that the person performs an act prohibited by this section or fails to perform an act required by this section.
Section 3 . An offense under this Order is punishable in accordance with the District's rules and policies regarding rates and may result in disconnection of service.
Section 4. The Board of Directors does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting considering this Order was posted at a designated place convenient to the public for the time required by law preceding this meeting, that such place of posting was readily accessible at all times to the general public, and that all of the foregoing was done as required by law at all times during which this Order, and the subject matter thereof has been discussed, considered and formally acted upon. The Board of Directors further ratifies, approves and confirms such written notice and the posting thereof.
Section 5. Should any paragraph, sentence, clause, phrase or word of this Order be declared unconstitutional or invalid for any reason, the remainder of this Order shall not be affected.
Section 6. {If Applicable} Order No, adopted on, is hereby repealed.
Approved and adopted by the Board of Directors on this day of,

President, Board of Directors	
Attest:	
Secretary	
Water Supply Corporation Re Pertaining to Illegal Water Connections	
Resolution No	
A RESOLUTION PERTAINING TO ILLEGAL WATER CONNECTION: RELATED TO THE WATER SUPPLY FOR THE	
WHEREAS, the Water Supply Corporation (the "WSC") available to its water customers is limited; and	, recognizes that the amount of water
WHEREAS, pursuant to Chapter 67 of the Water Code, the WSC necessary to preserve and conserve available water supplies; ar	
WHEREAS, the WSC seeks to adopt an order pertaining to illega	Il water connections and theft of water.
NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTO CORPORATION THAT:	ORS OF THE WATER SUPPLY
Section 1. The Board of Directors hereby approves and adopts	this Resolution as described herein.
Section 2. A person commits an offense of theft of water by an	y of the following actions:

- (a) A person may not knowingly tamper, connect to, or alter any component of the WSC's water system including valves, meters, meter boxes, lids, hydrants, lines, pump stations, ground storage tanks, and elevated storage tanks. This shall include direct or indirect efforts to initiate or restore water service without the approval of the WSC.
- (b) If, without the written consent of the WSC, the person knowingly causes, suffers or allows the initiation or restoration of water service to the property after termination of service(s). For purposes of this section, it shall be assumed that the owner, occupant, or person in control of the property caused, suffered, or allowed the unlawful initiation or restoration of service(s).
- (c) A person may not knowingly make or cause a false report to be made to the WSC of a reading of a water meter installed for metered billing.
- (d) A person commits a separate offense each day that the person performs an act prohibited by this section or fails to perform an act required by this section.
- **Section 3.** An offense under this Resolution is punishable in accordance with the WSC's rules and policies regarding rates, including its approved tariff, and may result in disconnection of service.
- **Section 4.** The Board of Directors does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting considering this Resolution was posted at a designated place convenient to the public for the time required by law preceding this meeting, that such place of posting was readily accessible at all times to the general public, and that all of the foregoing was done as required by law at all times during which this Resolution, and the subject matter thereof has been discussed, considered and formally acted upon. The Board of Directors further ratifies, approves and confirms such written notice and the posting thereof.

Section 5. Should any paragraph, sentence, clause, phrase or word of this Resolution be declared unconstitutional or invalid for any reason, the remainder of this Resolution shall not be affected.
Section 6. {If Applicable} Resolution No, adopted on, is hereby repealed.
Approved and adopted by the Board of Directors on this day of,
President, Board of Directors

Attest:

Secretary

Appendix I Landscape Ordinance

This is an example of a basic landscape ordinance which can be adopted or modified for adoption by municipalities or other jurisdictions. Landscape ordinances with a wide variety of formats and levels of complexity have been adopted by the governments of NTMWD Member Cities and Customers to date.

1. PURPOSE

Landscaping is accepted as adding value to property and is in the interest of the general welfare of the City. The provision of landscaped areas also serves to increase the amount of a property that is devoted to pervious surface area which, in turn, helps to reduce the amount of impervious surface area, storm water runoff, and consequent nonpoint pollution in local waterways. Therefore, landscaping is hereafter required of new development, including single and two family uses. Single and two family use requirements are less in scope than those for other uses such as multi family, commercial, institutional, and industrial development. Landscape requirements for these uses are set forth herein.

2. SCOPE AND ENFORCEMENT

The standards and criteria contained within this Section are deemed to be minimum standards and shall apply to all new or altered construction occurring within the City exceeding thirty percent (30%) of the original floor and/or site area. Additionally, any use requiring a Conditional Use Provision (CUP) zoning designation must comply with these landscape standards unless special landscaping standards are otherwise provided for in the ordinance establishing the CUP district. The provisions of this Section shall be administered and enforced by the City Manager or his/her designee. If at any time after the issuance of a certificate of occupancy, the approved landscaping is found to be not in conformance with the standards and criteria of this Section, the City Manager (or his/her designee) shall issue notice to the owner, citing the violation and describing what action is required to comply with this Section. The owner, tenant or agent shall have thirty (30) calendar days from date of said notice to establish/restore the landscaping, as required. If the landscaping is not established/restored within the allotted time, then such person shall be in violation of this Ordinance.

3. PERMITS

No permits shall be issued for building, paving, grading or construction until a detailed landscape plan is submitted and approved by the City Manager or his/her designee, along with the site plan and engineering/construction plans. A landscape plan shall be required as part of the site plan submission, as required in Section ___. The landscape plan may be shown on the site plan (provided the site plan remains clear and legible) or may be drawn on a separate sheet. Prior to the issuance of a certificate of occupancy for any building or structure, all screening and landscaping shall be in place in accordance with the landscape plan. In any case in which a certificate of occupancy is sought at a season of the year in which the City Manager, or his/her designee, determines that it would be impractical to plant trees, shrubs or groundcover, or to successfully establish turf areas, a temporary certificate of occupancy may be issued provided a letter of agreement from the property owner is submitted that states when the installation shall occur. All landscaping required by the landscaping plan shall be installed within six (6) months of the date of the issuance of the certificate of occupancy.

4. LANDSCAPE PLAN

Prior to the issuance of a building, paving, grading or construction permit for any use other than single family detached or two family dwellings, a landscape plan shall be submitted to the City Manager, or his/her designee. The City Manager, or his/her designee, shall review such plans and shall approve same if the plans are in accordance with the criteria of these regulations. If the plans are not in conformance, they shall be disapproved and shall be accompanied by a written statement setting forth the changes

necessary for compliance. The landscape plan shall be prepared and by a person knowledgeable in plant material usage and landscape design (e.g., landscape architect, landscape contractor, landscape designer, etc.). For all uses other than single and two family uses, the landscape plan shall be sealed by a registered landscape architect and shall contain the following minimum information:

- A. Minimum scale of one inch (1") equals fifty feet (50'); show scale in both written and graphic form.
- B. Trunk location and caliper size, dripline location, and species of all trees to be preserved. Tree stamps or standard symbols shall not be used unless they indicate true size and location of trees and driplines.
- C. Location of all plant and landscaping material to be used, including plants, paving, benches, screens, fountains, statues, earthen berms, ponds (to include depth of water), topography of site, or other landscape features.
- D. Species and common names of all plant materials to be used.
- E. Size of all plant material to be used (container size, planted height, etc.)
- F. Spacing of plant material where appropriate.
- G. Layout and description of irrigation, sprinkler, or water systems including location of water sources.
- H. Name and address of the person(s) responsible for the preparation of the landscape plan.
- I. North arrow/symbol, and a small map indicating location of the property.
- J. Date of the landscape plan.

5. GENERAL STANDARDS

The following criteria and standards shall apply to landscape materials and installation:

- A. All required landscaped open areas shall be completely covered with living plant material or landscape mulch materials such as shredded hardwood mulch or decomposed granite.
- B. Plant materials shall conform to the standards of the approved plant list for the City and the current edition of the "American Standard for Nursery Stock" (as amended), published by the American Association of Nurserymen. Approved plant lists should Grass seed, sod and other material shall be clean and free of weeds and noxious pests and insects.
- C. Large trees shall have an average spread of crown of greater than fifteen feet (15') at maturity. Trees having a lesser average mature crown of fifteen feet (15') may be substituted by grouping the same so as to create the equivalent of fifteen feet (15') of crown spread. Large trees shall be a minimum of three inches (3") in caliper measured six inches (6") above the ground and ten feet (10') in height at time of planting. Small trees shall be a minimum of two inches (2") in caliper measured six inches (6") above the ground and eight feet (8') In height at time of planting.

- D. Shrubs not of a dwarf variety shall be a minimum of two feet (2') in height when measured immediately after planting. Hedges, where installed for screening purposes, shall be planted and maintained so as to form a continuous, unbroken, solid visual screen which will be six feet (6') high within three (3) years after time of planting (except for parking lot/headlight screens, which shall form a continuous, solid visual screen three feet high within two years after planting).
- E. Vines not intended as ground cover shall be a minimum of two feet (2') in height immediately after planting and may be used in conjunction with fences, screens, or walls to meet landscape screening requirements as set forth.
- F. Grass areas shall be sodded, plugged, sprigged, hydro mulched and/or seeded, except that solid sod shall be used in swales, earthen berms or other areas subject to erosion.
- G. Ground covers used in lieu of grass in whole and in part shall be planted in such a manner as to present a finished appearance and complete coverage within one (1) year of planting.
- H. All automatic, underground irrigation system shall have operational freeze and rain sensors to prevent watering at inappropriate times. Landscaped areas having less than four (4) feet in width shall be irrigated by underground tubing or other capillary system but not by aboveground spray. Irrigation equipment (except for controllers and weather stations) shall not be visible from public streets or walkways.
- I. Earthen berms shall have side slopes not to exceed 33.3 percent (three feet (3') of horizontal distance for each one foot (1') of vertical height). All berms shall contain necessary drainage provisions as may be required by the City's Engineer.

6. MINIMUM LANDSCAPING REQUIREMENTS FOR ALL USES OTHER THAN SINGLE- AND TWO-FAMILY RESIDENTIAL DEVELOPMENTS

- A. For all uses other than single and two-family uses, at least twenty percent (20%) of the street yard shall be permanently landscaped area. The street yard shall be defined as the area between the building front and the front property line. For gasoline service stations, the requirement is a minimum of fifteen percent (15%) landscaped area for the entire site, including a six hundred (600) square foot landscaped area at the street intersection corner (if any), which can be counted toward the fifteen percent (15%) requirement.
- B. A minimum fifteen foot (15') landscape buffer adjacent to the right-of-way of any major thoroughfare is required. Corner lots fronting two (2) major thoroughfares shall provide the appropriate required landscape buffer on both street frontages. All other street frontages shall observe a minimum ten foot (10') landscape buffer. One (1) large shade tree shall be required per forty (40) linear feet (or portion thereof) of street frontage. Trees may be grouped or clustered to facilitate site design and to provide an aesthetically pleasing, natural looking planting arrangement. The landscaped buffer area may be included in the required street yard landscape area percentage.
- C. Landscape areas within parking lots should generally be at least one parking space in size, with no landscape area less than fifty (50) square feet in area. Landscape areas shall be no less than five feet (5') wide and shall equal a total of at least sixteen (16) square feet per parking space.

There shall be a landscaped area with at least one (1) large tree within sixty feet (60') of every parking space. There shall be a minimum of one (1) large tree planted in the parking area for every ten (10) parking spaces for parking lots having more than twenty (20) spaces. Within parking lots, landscape areas should be located to define parking areas and to assist In clarifying appropriate circulation patterns. A landscape island shall be located at the terminus of all parking rows, and shall contain at least one tree. All landscape areas shall be protected by a monolithic concrete curb or wheel stops, and shall remain free of trash, litter, and car bumper overhangs. The area of parking lot landscaping islands shall be In addition to the required street yard landscape area percentage.

- D. All existing trees which are to be preserved shall be provided with undisturbed, permeable surface area under and extending outward to the existing dripline of the tree. All new trees shall be provided with a permeable surface under the dripline a minimum of five feet (5') by five feet (5').
- E. A minimum of fifty percent (50%) of the total trees required for the property shall be large shade trees as specified on the City's approved plant list. Large trees shall not be used under existing or proposed overhead utility lines.
- F. Necessary driveways from the public right-of-way shall be permitted through all required landscaping in accordance with City regulations.

7. MINIMUM LANDSCAPING REQUIREMENTS FOR SINGLE-FAMILY AND TWO- FAMILY DEVELOPMENTS

- A. For all single family and two family developments, each residential lot shall be planted with at least one (1) large tree having a minimum caliper of three inches (3") in the front yard; and one (1) large tree having a minimum caliper of three inches (3") in the back yard; and one (1) small tree having a minimum caliper of two inches (2") in the front yard; and two (2) small trees having a minimum caliper of two inches (2") in the back yard. Trees shall be from the city's approved plant list.
- B. Only small trees from the city's approved plant list shall be allowed to be planted between the street curb and the right-of-way, unless otherwise specifically approved as part of a Planned Development (PD).

8. SIGHT DISTANCE AND VISIBILITY

Rigid compliance with these landscaping requirements shall not be such as to cause visibility obstructions and/or blind corners at intersections. Whenever an intersection of two (2) or more public right-of-way occurs, a triangular visibility area, as described below, shall be created. Landscape planting within the triangular visibility area shall be designed to provide unobstructed cross visibility at a level between thirty inches (30") and seven feet (7') measured above top of curb. Trees may be permitted in this area provided they are trimmed in such that lateral limbs or foliage extend into the cross visibility area. The triangular areas are:

A. The areas of property on both sides of the intersection of an alley access way and public rightof-way shall have a triangular visibility area with two (2) sides of each triangle being a minimum

- of ten feet (10') in length from the point of intersection and the third side being a line connecting the ends of the other two (2) sides.
- B. The areas of property located at a corner formed by the intersection of two (2) or more public right-of-ways (or a private driveway onto a public road) shall have a triangular visibility area with two (2) sides of each triangle being a minimum of twenty five feet (25') in length along the right-of-way lines (or along the driveway curb line and the road right-of-way line) from the point of the intersection and the third side being a line connecting the ends of the other two (2) sides. In the event other visibility obstructions are apparent in the proposed landscape plan, as determined by the City Manager or his/her designee, the requirements set forth herein may be reduced to the extent to remove the conflict.

SAMPLE RECOMMENDED PLANT LIST

These native/adapted plants exhibit a combination of outstanding characteristics in low water use, low maintenance, disease and insect resistance, and appearance.

Large Trees
Bur Oak
Cedar Elm
Chinquapin Oak
Lacebark Elm
Live Oak
Shumard Oak
Texas Ash

Medium Trees Lacey Oak Little Gem Magnolia

Shantung Maple Texas Pistache

Narrow-Leaf Trees

Arizona Cypress Bald Cypress Deodar Cedar Eastern Red Cedar Spartan Juniper

Small Trees Crepe Myrtle Desert Willow Possumhaw Holly Redbud

Savannah Holly

Texas Mountain Laurel Texas Persimmon Tree Yaupon Holly Vitex/Chaste Tree

Tall Shrubs Nellie R. Stevens Holly

Oleander Wax Myrtle

Yew

Medium/Small Shrubs

Agave
Boxleaf Euonymus
Compact Eleagnus
Compact Texas Sage
Dwarf Burford Holly
Dwarf Yaupon Holly
Dwarf Oleander
Indian Hawthorne

Knock-Out Red/Pink Rose

Lorapetalum Red Yucca

Sandankwa Viburnum

Softleaf Yucca

Spineless Prickly Pear Upright Rosemary **Perennials**

Autumn Pink/Maroon Sage Black-Eyed Susan Blue Plumbago Gayfeather Indian Blanket Purple Coneflower

Russian Sage Skeletonleaf Goldeneye

Texas Lantana

Ornamental Grasses

Big Muhly

Dwarf Fountain Grass Mexican Feathergrass

Groundcover/Vines

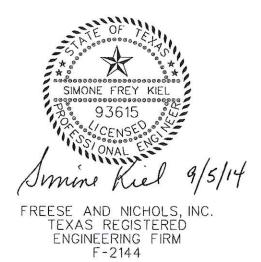
Carolina Jessamine

Crossvine

Liriope/Giant Liriope Trailing Rosemary

Turf

Bermuda Grass Buffalo Grass Zoysia



NORTH TEXAS MUNICIPAL WATER DISTRICT RESERVOIR ACCOUNTING PLAN

For the Lower Bois d'Arc Creek Reservoir

Simone Kiel, P.E. and Jon S. Albright, Freese and Nichols, September 5, 2014

INTRODUCTION

The North Texas Municipal Water District (the "District") is seeking a water use permit to store, divert and use surface water from the proposed Lower Bois d'Arc Creek Reservoir (the "Reservoir") in Fannin County. This water would be used within the District's service area.

The District has a pending application (Application No. 12151) that requests, among other things, the following rights:

- The impoundment of up to 367,609 acre-feet.
- The use of the impounded water for recreation purposes.
- The diversion and use of up to 175,000 acre-feet per year for municipal, industrial and agricultural purposes.
- The diversion from any point on the perimeter of the Reservoir at a maximum diversion rate of 365.15 cfs (163,889 gpm, 236 mgd).

This accounting plan provides the framework to document compliance with the environmental flow regime that has been developed by the Texas Commission on Environmental Quality, which is shown in the table below (Table 1). A qualifying pulse occurs when the peak and either the volume or duration criterion have been met. If the District intentionally releases water downstream to generate a qualifying pulse at the USGS gage 07332622, Bois d'Arc Creek at FM 409, then the qualifying pulse at FM 409 must meet the peak and both the volume and duration criteria.

Accounting Plan Lower Bois d'Arc Creek Reservoir September 5, 2014 Page 2 of 17

Table 1
Environmental Flow Regime for the Reservoir

Season	Months	Subsistence Flow (cfs) ¹	Base Flow (cfs)	Pulse Volume (ac-ft)	Pulse Duration (days)	Pulse Peak Flow (cfs)
Spring	March-June	1	10	3,540	10	500
Summer	July-October	1	3	500	5	100
Fall/Winter	Nov-Feb	1	3	1,000	7	150

^{1.} A subsistence period freshet requirement with a trigger level of 20 cfs, a volume of 69 ac-ft, and a duration of 3 days, as further defined below, also applies.

During subsistence conditions, a subsistence flow freshet requirement will be in effect. Similar to the pulse flow requirements, a qualifying freshet occurs when the peak and either the volume or duration criterion have been met. The freshet requirement occurs only during subsidence periods and there is a consideration of a 60-day period between qualified freshets. Once the Reservoir is no longer in subsistence conditions, the pulse flow requirements outlined in Table 1 return in effect.

ELEMENTS OF THE ACCOUNTING PLAN

The accounting plan includes the following tables:

- **Table 1: Basic Input Data** includes basic data for the Reservoir on a daily basis, including elevation, releases, diversions from the lake, etc.
- **Table 2: Calculation of Reservoir Inflows** calculates daily inflow to the Reservoir using a basic mass-balance calculation.
- **Table 3: Calculation of Environmental Flows** calculates the environmental flow conditions for compliance with the agreed on environmental flow regime for the Reservoir, with the exception of the subsistence freshet.
- Table 4: Calculation of Subsistence Freshet calculates the environmental flow conditions for compliance with the subsistence freshet for the Reservoir
- **Table 5 Net Reservoir Evaporation** computes the net Reservoir evaporation rate from the Reservoir. This information is used for the calculation of inflows in Table 2.
- **Table 6: Summary Reporting Data for Water Right** provides a monthly summary of data necessary for the annual water right report.

Accounting Plan Lower Bois d'Arc Creek Reservoir September 5, 2014 Page 4 of 17

- (1.7) Flow at FM 409. This is the average daily flow recorded by the USGS at the FM 409 gage. This is measured in cfs.
- (1.8) Rainfall. This is measured rainfall data at the dam for the Reservoir. (It is assumed that a rainfall gage will be installed at the dam.) This is measured in inches of rainfall.
- (1.9) Pan Evaporation. This is the amount of evaporation at the dam for the Reservoir. (It is assumed that an evaporation pan will be installed at the dam. Alternatively, daily evaporation data may be obtained from an existing nearby lake.) This is measured in inches of evaporation.
- (1.10) Flow at FM 100. This is the daily average flow for a future partial flow gage on Bois d'Arc Creek located near FM 100. It is anticipated that the flow gage will measure flows at and above 500 cfs. Flows less than 500 cfs will be denoted either as a dash or "<500".
- (1.11) Flow at TX 56. This is the daily average flow for a future USGS flow gage on Bois d'Arc Creek located near Texas Highway 56. This is measured in cfs. Data from this flow gage will be used to provide estimates of inflows to the Reservoir under low flow conditions for purposes of environmental flow compliance.
- (1.12) Bonham Wastewater Discharge. This is the amount of wastewater discharged to the Bois d'Arc Creek watershed from the City of Bonham's wastewater treatment plant. It is measured in cfs.
- (1.13) Honey Grove Wastewater Discharge. This is the amount of wastewater discharged to the Bois d'Arc Creek watershed from the City of Honey Grove's wastewater treatment plant. It is measured in cfs.

Data from the previous year's accounting plan for December 31 will be entered on row 12, and include End-of-Day Elevation (1.2), Pumped Amount (1.3), Releases (1.4) and Spills (1.6). The number of pulses credited during November and December of the previous year will be entered in cell K2. This value is taken from Table 3, cell AG4 of the previous year's accounting plan.

TABLE 2 - CALCULATION OF RESERVOIR INFLOWS

This table calculates the inflow to the Reservoir using two methodologies: 1) a basic mass-balance computation and 2) a measured gage flow with drainage area ratio computation. The gage flow/drainage area method also considers wastewater discharges from the Bonham and Honey Grove wastewater treatment plants. The gage flow/drainage area method will only be used for environmental flow calculations and compliance for days on which the flows that are calculated by the mass-balance method are 150 cfs and less. On days that flows exceed 150 cfs by the mass-balance method, the mass-balance method would be used for environmental flow calculations and compliance.

The columns in the table are developed as follows:

Accounting Plan Lower Bois d'Arc Creek Reservoir September 5, 2014 Page 5 of 17

Columns (2.1) through (2.11) describe the Reservoir inflows using mass-balance method:

- (2.1) Date. This is the date to which the data apply. It is referenced from Table 1 (1.1).
- (2.2) Month. This is the month to which the data apply.
- (2.3) Storage. This is the calculated Reservoir storage in acre-feet based on the previous day's measured surface water elevation (Table 1 (1.2)) and the Area-Capacity-Elevation Table.
- (2.4) Area. This is the calculated Reservoir area in acres (ac) based on the previous day's measured surface water elevation (Table 1 (1.2)) and the Area-Capacity-Elevation Table.
- (2.5) <u>Net Evaporation.</u> This is the net evaporation rate in feet for the Reservoir. This rate is calculated in Table 4.
- (2.6) Net Reservoir Evaporative Loss. This is the calculated daily evaporative loss based on the surface area of the Reservoir (Columns (2.4) x (2.5)). It is reported in acre-feet of loss.
- (2.7) <u>Diversion.</u> This is the actual diversion from the lake in acre-feet. The information is taken from Table 1 (1.3) and converted from million gallons to acre-feet.
- (2.8) Releases. This is the actual releases from the lake in acre-fect. The information is taken from Table 1 (1.4) and converted from cubic feet per second (cfs) to acrefect.
- (2.9) Spills. This is the actual spills from the lake in acre-feet. The information is taken from Table 1 (1.6) and converted from day second feet (dsf) to acre-feet.
- (2.10) Inflow (ac-ft). This is the mass-balance calculated inflow to the lake in acre-feet. It is determined by the change in storage from the previous day (2.3 for the current day minus 2.3 for the previous day) plus the net evaporative loss (2.6), diversions (2.7), releases (2.8), and spills (2.9).
- (2.11) <u>Inflow (cfs).</u> This is the mass-balance calculated inflow to the lake (2.10) converted to cfs.

Column (2.12) calculates the Reservoir inflows using gage/drainage area method:

(2.12) Inflow (cfs). This is the calculated inflow to the lake using the gage/drainage area method by multiplying the gage flow at TX 56 (1.11) times the drainage area ratio [Factor (C21)] plus the Bonham wastewater discharges (1.12) and the Honey Grove wastewater discharges (1.13).

Columns (2.13) and (2.14) describes the Reservoir inflows that are used for environmental flow purposes:

- (2.13) Inflow (cfs). This column selects the appropriate inflow value for environmental flow calculations and compliance. If the inflow using the mass-balance method (2.11) is greater than 150 cfs, then the mass-balance method inflow (2.11) is recorded in this column. If the mass-balance method (2.11) is less than or equal to 150 cfs, then the gage/drainage area inflow (2.12) is recorded.
- (2.14) Inflow (ac-ft). This is the calculated inflow to the lake (2.13) converted to ac-ft that is used for environmental flow calculations and compliance.

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TABLE 3 – CALCULATION OF ENVIRONMENTAL FLOWS

This table calculates the environmental flow conditions for compliance with the environmental flow regime for the Reservoir, with the exception of the Subsistence Freshet, which is calculated in Table 4. This environmental flow regime is shown on Table 1 and provided for reference in the spreadsheet in the array located in cells F2:L4. The columns in this table are developed as follows:

Columns (3.1) through (3.5) describe the Reservoir inflow and identify the season:

- (3.1) Date. This is the date to which the data apply. It is referenced from Table 1 (1.1).
- (3.2) Month. This is the month to which the data apply.
- (3.3) Season. This is the corresponding season as defined for environmental flows. It is based on the month (3.2) and the environmental flow regime shown on Table 1.
- (3.4) Reservoir Inflow. This is the Reservoir inflow expressed in cfs. It is taken from Table 2 (2.13).
- (3.5) Reservoir Day Type. This is the classification of day type for purposes of environmental flows. A day would be classified as "subsistence" if the Reservoir is below elevation 516.4 ft msl. A day would be classified as "pulse" if the previous day is a base flow day and inflows are greater than 25 cfs. The 25 cfs level provides a distinction between varying base flow levels and pulse flows for purposes of initiating a pulse event. The 25 cfs value, based on inspection of historical data for Bois d'Arc Creek, is a good indicator of when a pulse is about to occur. The "pulse" day classification remains in effect until the flows return to the season's base flow criteria. All other days are classified as "base" flow days.

Columns (3.6) through (3.9) describe the base flow calculations:

- (3.6) <u>Seasonal Base Flow.</u> This is the seasonal base flow criterion. This is referenced from the environmental flow regime and season (3.3). It is measured in cfs.
- (3.7) Base Flow Calculation. This is the required base flow release. It is calculated as the smaller amount of the inflow (3.4) or seasonal base flow (3.6). It is calculated for both "base" flow and "pulse" flow days (3.5). While temporarily impounding pulse flows, base flow releases will continue to be made. If the temporarily impounded pulse flow is subsequently released from the Reservoir, the base flow releases made during temporary impoundment are considered for compliance of the volume requirements for pulse flow release in Column (3.42) and (3.43). It is measured in cfs.
- (3.8) Subsistence Flow Calculation. This is the required subsistence flow release (not including the subsistence freshet). It is calculated as the smaller amount of the inflow (3.4) or subsistence flow criterion (1 cfs). It only applies to "subsistence" days (3.5). It is measured in cfs. Days not designated as "subsistence" are shown as "NA" for "Not Applicable".

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(3.9) Actual Base/Subsistence Flow Releases. This is the amount of flow that is actually released to satisfy the base flow and subsistence flow (excluding the subsistence freshet) requirements of the environmental flow regime. It is taken from Table 1 (1.4) for releases noted as base flow (Table 1 (1.5) = 1) and flows designated as supplemental releases (Table 1 (1.5) = 4). For pulse flow releases (Table 1 (1.5) = 2), the season's base flow requirement (3.6) is recorded in this column. Subsistence freshet flows (Table 1 (1.5) = 3) are shown as "NA" for not applicable.

Columns (3.10) through (3.12) describe the pulse flow seasonal qualifiers:

- (3.10) Qualifying Duration. This is the seasonal pulse flow duration criterion. This is referenced from the environmental flow regime and season (3.3). This is measured in days.
- (3.11) Qualifying Volume. This is the seasonal pulse flow volume criterion measured in acre-feet. This is referenced from the environmental flow regime and season (3.3).
- (3.12) Qualifying Pulse Peak. This is the seasonal pulse flow peak criterion measured in cfs. This is referenced from the environmental flow regime and season (3.3).

Columns (3.13) through (3.18) describe the pulse flow calculations for the Reservoir:

- (3.13) Reservoir Pulse Volume. This is the daily volume of inflow to the Reservoir for days that are designated as a "pulse" day. The volume is in acre-feet and is referenced from Table 2 (2.14).
- (3.14) Reservoir Pulse Duration. This calculates the number of days in a continuous pulse with the maximum number of days equal to the qualifying duration for the season (3.10).
- (3.15) Reservoir Cumulative Pulse Volume. This is the cumulative volume of the pulse entering the Reservoir, calculated for the previous (n) days of the pulse, where the maximum (n) is the qualifying duration for the season. This is calculated in acrefeet.
- (3.16) Reservoir Qualifying Pulse Volume. This column compares the Reservoir cumulative pulse volume (3.15) to the qualifying volume (3.11). If the cumulative volume of the pulse equals or exceeds the qualifying volume, then a "Y" is recorded for "Yes". If the cumulative volume is less than the qualifying volume, then an "N" is recorded for "No".
- (3.17) Reservoir Qualifying Pulse Duration. This column compares the duration of the Reservoir pulse (3.14) to the qualifying pulse duration (3.10). If the duration of the pulse equals the qualifying duration, then a "Y" is recorded for "Yes". If the duration is less than the qualifying duration, then an "N" is recorded for "No".
- (3.18) Reservoir Qualifying Pulse Peak. This column compares the Reservoir pulse flow (3.4) to the qualifying pulse peak (3.12). If the daily pulse flow (cfs) equals or exceeds the qualifying peak flow, then a "Y" is recorded for "Yes". If the flow is less than the qualifying peak flow, then an "N" is recorded for "No". Since this

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analysis is not applicable to subsistence conditions, an "N" is recorded for "No" if the Reservoir is in subsistence conditions.

Columns (3.19) through (3.26) describe the pulse flow calculations at FM 409:

- (3.19) Flows at FM 409. This is the average daily flow at the USGS gage at FM 409 in cfs. It is obtained from Table 1 (1.7).
- (3.20) FM 409 Pulse Day. This is the determination of whether the flows at FM 409 constitute a pulse flow. A pulse day would be recorded as "Y" (for yes) if flows at FM 409 are greater than 25 cfs or the previous day was classified as a pulse and the flows have not returned to seasonal base flow level. The 25 cfs level provides a distinction between varying base flow levels and pulse flows for purposes of initiating a pulse event. The 25 cfs value, based on inspection of historical data for Bois d'Arc Creek, is a good indicator of when a pulse is about to occur. All other days are classified as a non-pulse flow day and recorded with an "N" for "No". Since this analysis is not applicable to subsistence conditions, an "N" is recorded for "No" if the Reservoir is in subsistence conditions.
- (3.21) FM 409 Pulse Volume. This is the daily volume of flow at FM 409 for days that are designated as a pulse day. The volume is in acre-feet.
- (3.22) FM 409 Pulse Duration. This calculates the number of days in a continuous pulse at FM 409 with the maximum number of days equal to the qualifying duration for the season (3.10).
- (3.23) FM 409 Cumulative Pulse Volume. This is the cumulative volume of the pulse at FM 409, calculated for the previous (n) days of the pulse, where the maximum (n) is the qualifying duration for the season. This is reported in acre-feet.
- (3.24) FM 409 Qualifying Pulse Volume. This column compares the FM 409 cumulative pulse volume (3.23) to the qualifying volume (3.11). If the cumulative volume of the pulse equals or exceeds the qualifying volume, then a "Y" is recorded for "Yes". If the cumulative volume is less than the qualifying volume, then an "N" is recorded for "No".
- (3.25) FM 409 Qualifying Pulse Duration. This column compares the duration of the FM 409 pulse (3.22) to the qualifying pulse duration (3.10). If the duration of the pulse equals the qualifying duration, then a "Y" is recorded for "Yes". If the duration is less than the qualifying duration, then an "N" is recorded for "No".
- (3.26) FM 409 Qualifying Pulse Peak. This column compares the flows at FM 409 (3.19) to the qualifying pulse peak (3.12). If the daily pulse flow (cfs) equals or exceeds the qualifying peak flow, then a "Y" is recorded for "Yes". If the flow is less than the qualifying peak flow, then an "N" is recorded for "No". Since this analysis is not applicable to subsistence conditions, an "N" is recorded for "No" if the Reservoir is in subsistence conditions.
- (3.27) Deliberate Release to Create a Pulse. This column records whether a release (not a qualified pulse release) was made from the Reservoir to create a pulse at FM 409. If such a release is made, a qualifying pulse at FM 409 must meet both the volume and duration criteria. This is determined from Table 1 (1.5). If the type of

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release recorded on Table (1.5) = 4, then a "Y" is recorded for "Yes". For all other types of releases, an "N" is recorded for "No".

Columns (3.28) through (3.30) describe the pulse flow credit determination:

- (3.28) Pulse Credit at FM 409. This column records whether a qualifying pulse occurred at FM 409. This is hand entered based on whether there was a qualifying peak flow at FM 409 [(3.26) ="Y"] and the pulse had a qualifying duration [(3.25)] = "Y"] or volume [(3.24) = "Y"]. A value of "1" is recorded in this column during the time of the qualifying pulse or immediately following qualification. If flow is released from the Reservoir to create a qualifying pulse at FM 409 (Column (3.27) shows a "Y" during or immediately preceding the pulse event), the pulse must meet both the volume and duration criteria (i.e., both Columns 3.24 and 3.25 must show a "Y" during the pulse event). The pulse can be counted as qualifying pulse at FM 409 (3.28), but it cannot also be counted as qualifying pulse release from the Reservoir (3.29). If the pulse flow requirements have been met for the season (see Table Z1:AC4), then no additional recordings are needed for the season. Pulses recorded during November and December of the current year fall/winter season (AG4) will be counted in the following calendar year accounting plan for compliance purposes. Pulses recorded in November and December of the previous year (AF4) are credited against the fall/winter season pulse criteria for the current year. The value in cell AF4 is referenced from T1-Input, cell K2.
- (3.29) Pulse Release from Reservoir. This column records whether a qualifying pulse was released from the Reservoir. This is hand entered based on whether there was no qualifying pulse at FM 409 (i.e., review of Columns 3.24 through 3.26 shows that the flows at FM 409 did not exceed the peak flow criteria or if the peak flow criteria was met but neither the volume or duration was met), yet there was a qualifying peak flow into the Reservoir (3.18) and the Reservoir pulse had a qualifying duration (3.17) or volume (3.16) during the same time period, and a qualifying pulse is subsequently released from the Reservoir. A value of "1" is recorded in this column during the time of the release of the qualifying pulse. Pulse flow releases will meet the minimum qualifying peak flow and the qualifying volume or duration for the specific season. Qualifying pulse flow will be released as close as practicable to the release patterns by season that are included in the worksheet called Release Patterns. The flow from a qualifying pulse released from the Reservoir that is counted as a qualifying pulse cannot also be counted as a qualifying pulse at FM 409. If the pulse flow requirements have been met for the season (see Table Z1:AC4), then no additional recordings are needed for the season. Pulses recorded during the months of November and December in the current year winter season (AG4) will be counted in the following calendar year accounting plan for compliance purposes.

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- (3.30) Released Pulse Amount. This is the amount of flow released from the Reservoir specifically to meet the pulse flow requirements of the environmental instream flow regime. It is taken from Table 1 (1.4) for releases noted as pulse flow (Table 1 (1.5) = 2) less the amount released for base flow (3.9).
- Table Z1:AC4: This table shows the required number of pulses per season and the number of credited pulses by season. The number of credited pulses is the sum of the recorded pulses in Columns (3.28) and (3.29) for each respective season. The credits for the fall/winter season include the recorded pulses in January and February of the current year plus the number of pulses recorded in November and December from the previous year. As discussed above, qualifying pulses that occur during the winter portion of the Fall/Winter season (November and December) from the previous year are shown in cell AF4. Qualifying pulses that occur during the winter portion of the Fall/Winter season (November and December) in the current year are recorded in cell AG4. Once the number of credited pulses equals the number of required pulses for a season, no additional recordings of pulses is required for the respective season.

Columns (3.31) through (3.38) provide checks for base/subsistence flow compliance and Columns (3.39) through (3.45) provide a check on compliance for pulse flows that are released directly from the Reservoir. These checks are included to allow the District to make adjustments if needed during the appropriate season.

Since base/subsistence flow calculations are made at the end of the day and the base/subsistence flow for the day would have already been released, the Accounting Plan provides a 14-day window for verification that the cumulative base/subsistence flow released (recorded in day-second-feet (dsf)) equals or exceeds the cumulative base/subsistence flow calculated to be released (dsf). If the calculations show that the actual base/subsistence flow released is less than the amount calculated, the District can adjust the base/subsistence releases over the subsequent 14 days.

Columns (3.31) through (3.34) describe the compliance check for base flows:

- (3.31) Counter (Days). This column counts the number of days up to a maximum of 14 days that base flows are passed from the Reservoir. It includes all days except the days the Reservoir is in subsistence conditions. This column is used to calculate the cumulative base flows released and the cumulative base flows that were calculated for release over a period up to 14 days.
- (3.32) <u>Cumulative Calculated Base Flow Releases (dsf)</u>. This calculates the cumulative calculated base flow (3.7) over the previous number of days (3.31). This is calculated in day-second-feet (dsf). The annual total is shown in the last row (below data entries for December 31 of the current year).
- (3.33) <u>Cumulative Actual Base Flow Releases (dsf)</u>. This calculates the cumulative base flow that was released from the Reservoir (3.9) over the previous number of days

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- (3.31). This is calculated in day-second-feet (dsf). Flow that is released for purposes of creating a pulse at FM 409 is included in the cumulative base flow release amounts, however, the flow above base flow requirements cannot be counted above the current daily base flow amount unless it is used to correct a deficit from the previous 14 days. The annual total is shown in the last row (below data entries for December 31 of the current year).
- (3.34) Comparison of Actual Release to Calculated Release (dsf). This column subtracts the calculated cumulative base flow release amount (3.32) from the actual cumulative base flow release (3.33). If the difference is less than "0", then the cell turns red. Negative flow amounts can be made up during the subsequent 14-day period. The annual total is shown in the last row (below data entries for December 31 of the current year). This value will help the user determine if any additional base flow releases are needed for compliance with the calculated base flow releases.

Columns (3.35) through (3.38) describe the compliance check for subsistence flows (excluding freshets):

- (3.35) Counter (Days). This column counts the number of days up to a maximum of 14 days that subsistence flows are passed from the Reservoir. It includes only days the Reservoir is in "subsistence" conditions. Days that the Reservoir is in "freshet" conditions are shown as "0".
- (3.36) <u>Cumulative Calculated Subsistence Flow Releases (dsf)</u>. This calculates the cumulative calculated subsistence flow (3.8) over the previous number of days (3.35). This is calculated in day-second-feet (dsf). The annual total is shown in the last row (below data entries for December 31 of the current year).
- (3.37) <u>Cumulative Actual Subsistence Flow Releases (dsf)</u>. This calculates the cumulative subsistence flow that was released from the Reservoir (3.9) over the previous number of days (3.35). This is calculated in day-second-feet (dsf). Freshet releases are not included in this calculation. The annual total is shown in the last row (below data entries for December 31 of the current year).
- (3.38) Comparison of Actual Release to Calculated Release (dsf). This column subtracts the calculated cumulative subsistence flow release amount (3.36) from the actual cumulative base flow release (3.37). If the difference is less than "0", then the cell turns red. Negative flow amounts can be made up during the subsequent 14-day period. The annual total is shown in the last row (below data entries for December 31 of the current year). This value will help the user determine if any additional subsistence flow releases are needed for compliance with the total calculated subsistence flow release.

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Columns (3.39) through (3.45) describe the compliance check for pulse flows (excluding freshets) that are released from the Reservoir:

- (3.39) Released Pulse Volume (ac-ft). This is the daily volume of water released from the Reservoir for a pulse flow in acre-feet. It is calculated from Column (3.30) times Factor C7.
- (3.40) Released Pulse Duration (days). This calculates the number of days in a continuous pulse from Column (3.30).
- (3.41) <u>Cumulative Released Pulse Volume (ac-ft)</u>. This is the cumulative volume of water released as part of a continuous pulse. It is calculated from Columns (3.39) and (3.40) and recorded in acre-feet.
- (3.42) Reservoir Cumulative Pulse Volume Released during Temporary Impoundment (ac-ft). This is the cumulative volume of a pulse inflow that was released as base flow during the period when the pulse was being temporarily impounded. It is calculated as the base flow requirement for the season (3.6) times the number of days in the pulse (3.40) and converted to acre-feet (Factor C7). It is assumed that during temporary impoundment, the inflow to the Reservoir would exceed the base flow requirements and the amounts released for base flow compliance would be the base flow requirement for the season.
- (3.43) Reservoir Qualifying Pulse Volume (Y/N). This column compares the cumulative pulse volume released from the Reservoir (3.41) to the qualifying volume (3.11). If the cumulative volume of the pulse equals or exceeds the qualifying volume, then a "Y" is recorded for "Yes". If the cumulative volume is less than the qualifying volume, then an "N" is recorded for "No".
- (3.44) Reservoir Qualifying Duration (Y/N). This column compares the duration of the released pulse (3.40) to the qualifying pulse duration (3.10). If the duration of the released pulse equals the qualifying duration, then a "Y" is recorded for "Yes". If the duration is less than the qualifying duration, then an "N" is recorded for "No".
- (3.45) Reservoir Qualifying Peak Flow (Y/N). This column compares the flows of the released pulse (3.30) plus the flows released for base flow compliance (3.9) to the qualifying pulse peak (3.12). The total flow released on a daily basis is the basis for compliance with peak flow requirements. If the daily total released flow (cfs) equals or exceeds the qualifying peak flow, then a "Y" is recorded for "Yes". If the flow is less than the qualifying peak flow, then an "N" is recorded for "No".

TABLE 4 - CALCULATION OF SUBSISTENCE FRESHET

This table calculates the environmental flow conditions for compliance with the agreed on Subsistence Freshet for the Reservoir. A subsistence period freshet requirement is in place during the subsistence period without seasonal differences. The subsistence freshet has a trigger level of 20 cfs, a volume of 69 acre-feet, and a duration of 3 days. A qualifying freshet occurs when the peak and either the volume or duration criterion have been met. Qualified freshets that enter the Reservoir will only need to be passed if a qualified freshet does not occur at FM 409 within the previous 60-day period. At a

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maximum, only 1 qualified freshet would be passed within a 60-day period if a qualified freshet was recorded in the Reservoir but no qualified freshet was recorded at FM 409 over the same time period. Data from the last day of the previous year is entered on Row 12. This data is needed if the subsistence period extends across calendar years. The columns in this table are developed as follows:

Columns (4.1) through (4.4) describe the Reservoir inflow and Reservoir day type:

- (4.1) <u>Date.</u> This is the date to which the data apply. It is referenced from Table 1 (1.1).
- (4.2) <u>Reservoir Inflow.</u> This is the Reservoir inflow expressed in cfs. It is taken from Table 2 (2.13).
- (4.3) <u>Subsistence Day.</u> This identifies whether the Reservoir is in subsistence conditions. A subsistence day would be classified as "Y" for "Yes" if the Reservoir is below elevation 516.4 ft msl. All other days are classified as "N" for "No".
- (4.4) Reservoir Day Type. This classifies the day as either "subsidence" or "freshet" when the Reservoir is in subsistence conditions. If inflows to the Reservoir, less the wastewater discharges from Bonham [T1-Input (1.12)] and Honey Grove [T1-Input (1.13)], are less than or equal to 1 cfs, it is a subsistence day. If inflows, less wastewater discharges, are greater than 1 cfs it is a freshet day. This calculation characterizes the intent of the freshet as a natural inflow event. If the Reservoir is not in subsistence conditions, a "NA" is recorded for "Not Applicable".

Columns (4.5) through (4.10) describe the freshet flow calculations for the Reservoir:

- (4.5) Reservoir Freshet Volume. This is the daily volume of inflow to the Reservoir for days that are designated as a "freshet" day (4.4). The volume is in acre-feet and is referenced from Table 2 (2.14).
- (4.6) Reservoir Freshet Duration. This calculates the number of days in a continuous freshet with the maximum number of days equal to three (3).
- (4.7) Reservoir Cumulative Freshet Volume. This is the cumulative volume of the freshet entering the Reservoir, calculated for the previous (n) days of the freshet, where the maximum (n) is three (3). This is calculated in acre-feet.
- (4.8) Reservoir Qualifying Freshet Volume. This column compares the Reservoir cumulative freshet volume (4.7) to the qualifying volume of 69 acre-feet (G2). If the cumulative volume of the freshet equals or exceeds the qualifying volume, then a "Y" is recorded for "Yes". If the cumulative volume is less than the qualifying volume, then an "N" is recorded for "No".
- (4.9) Reservoir Qualifying Freshet Duration. This column compares the duration of the Reservoir freshet (4.6) to the qualifying freshet duration of 3 days (H2). If the duration of the freshet equals the qualifying duration, then a "Y" is recorded for "Yes". If the duration is less than the qualifying duration, then an "N" is recorded for "No".

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(4.10) Reservoir Qualifying Freshet Peak. This column compares the Reservoir freshet flow (4.2) to the qualifying freshet peak of 20 cfs (I2). If the daily freshet flow (cfs) equals or exceeds the qualifying peak flow, then a "Y" is recorded for "Yes". If the flow is less than the qualifying peak flow, then an "N" is recorded for "No".

Columns (4.11) through (4.18) describe the freshet flow calculations at FM 409:

- (4.11) Flows at FM 409. This is the average daily flow at the USGS gage at FM 409 in cfs. It is obtained from Table 1 (1.7).
- (4.12) FM 409 Freshet Day. This is the determination of whether the flows at FM 409 constitute a freshet flow during subsistence conditions. If the Reservoir is not in subsistence conditions, the day is recorded with an "NA" for "Not Applicable". During subsistence conditions, a freshet day would be recorded as "Y" if flows at FM 409 are greater than 20 cfs or the previous day was classified as a freshet and the flows have not returned to a subsistence flow level (less than 2 cfs). All other subsistence days are classified as "N" for non-freshet day.
- (4.13) FM 409 Freshet Volume. This is the daily volume of flow at FM 409 for days that are designated as a freshet day. The volume is in acre-feet.
- (4.14) FM 409 Freshet Duration. This calculates the number of days in a continuous freshet at FM 409 with the maximum number of days equal to the qualifying duration for the freshet (3 days).
- (4.15) <u>FM 409 Cumulative Freshet Volume.</u> This is the cumulative volume of the freshet at FM 409, calculated for the previous three (3) days of the freshet. This is reported in acre-feet.
- (4.16) FM 409 Qualifying Freshet Volume. This column compares the FM 409 cumulative freshet volume (4.15) to the qualifying volume (G2). If the cumulative volume of the freshet equals or exceeds the qualifying volume, then a "Y" is recorded for "Yes". If the cumulative volume is less than the qualifying volume, then an "N" is recorded for "No".
- (4.17) FM 409 Qualifying Freshet Duration. This column compares the duration of the FM 409 freshet (4.14) to the qualifying freshet duration (H2). If the duration of the freshet equals the qualifying duration, then a "Y" is recorded for "Yes". If the duration is less than the qualifying duration, then an "N" is recorded for "No".
- (4.18) FM 409 Qualifying Freshet Peak. This column compares the flows at FM 409 (3.19) to the qualifying freshet peak (I2). If the daily freshet flow (cfs) equals or exceeds the qualifying peak flow (20 cfs), then a "Y" is recorded for "Yes". If the flow is less than the qualifying peak flow, then an "N" is recorded for "No".

Column (4.19) provides the 60-day counter for the freshet flow requirement:

(4.19) Counter (Days). This column records the number of days since a qualified freshet occurred at FM 409 or was released from the Reservoir. If the Reservoir is not in subsistence conditions, a "NA" is recorded for "Not Applicable". At the start of subsistence conditions, the counter is set at 1. Once a qualified freshet is recorded at FM 409 (4.20) or released from the Reservoir (4.21), the counter is reset at 1.

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Columns (4.20) through (4.22) describe the freshet flow credit determination:

- (4.20) Freshet Credit at FM 409. This column records whether a qualifying freshet occurred at FM 409. This is hand entered based on whether there was a qualifying peak flow at FM 409 [(4.18) = Y] and the freshet had a qualifying duration [(4.17) = Y] or volume [(4.16) = Y] over the duration of the freshet. A value of "1" is recorded at the end of the qualifying freshet.
- (4.21) Freshet Release from Reservoir. This column records whether a qualifying freshet was released from the Reservoir. This is hand entered based on whether there was no qualifying freshet at FM 409 during the previous 60-day period in subsistence conditions [i.e., review of columns 4.16 through 4.18 shows that the flows at FM 409 did not exceed the peak flow criteria (4.18) or if the peak flow criteria was met but neither the volume (4.16) or duration (4.17) was met] and a qualifying freshet was recorded into the Reservoir [i.e., review of columns 4.8 through 4.10 shows that the inflows to the Reservoir exceeded the peak flow criteria (4.10) and either the volume (4.18) or duration (4.9) was met] and a qualifying freshet is released from the Reservoir. A value of "1" is recorded during the time of the release of the qualifying freshet. Freshet flow releases will meet the minimum qualifying peak flow and the qualifying volume or duration specified for the freshet in a manner as close as practicable to the release pattern included in worksheet Release Patterns. The flow from a qualifying freshet released from the Reservoir that is counted as a qualifying freshet cannot also be counted as a qualifying freshet at FM 409.
- (4.22) Released Freshet Amount. This is the amount of flow released from the Reservoir specifically to meet the freshet flow requirements of the environmental instream flow regime. It is taken from Table 1 (1.4) for releases noted as freshet flow (Table 1 (1.5) = 3).

TABLE 5 - NET RESERVOIR EVAPORATION RATE

- (5.1) Date. This is the date to which the data apply. It is referenced from Table 1 (1.1).
- (5.2) Month. This is the month to which the data apply.
- (5.3) Pan Evaporation. This is measured pan evaporation data in inches for the Reservoir.
- (5.4) Pan Factor. This is an empirical factor to estimate evaporation from a Reservoir surface based on evaporation from a pan. The coefficients for each month are based on weighted averages of pan factors developed by the Texas Water Development Board for quadrangles 411 and 412. The empirical factors are entered on the Factors worksheet.
- (5.5) <u>Gross Reservoir Evaporation.</u> This is the estimated gross evaporation from the Reservoir surface in inches. It is equal to Column (5.3) times Column (5.4).
- (5.6) Rainfall. This is measured rainfall data in inches for the Reservoir.

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- (5.7) Net Reservoir Evaporation. This is the estimated net Reservoir evaporation in inches from the surface of the Reservoir. It is equal to Column (5.5) minus Column (4.6).
- (5.8) Net Reservoir Evaporation. This is the estimated net Reservoir evaporation from the surface of the Reservoir expressed in feet. It is equal to Column (5.7) divided by 12.

TABLE 6 – SUMMARY REPORTING DATA FOR WATER RIGHT

This table is provided to assist the District with the reporting requirements to the TCEQ on diversions associated with its anticipated water right permit for the Reservoir.

- (6.1) Month Number. This is the number of the month to which the data apply.
- (6.2) Month Name. This is the month to which the data apply.
- (6.3) Maximum Diversion Rate. This is the maximum diversion rate in cfs for pumped amounts for the corresponding month. It is taken from Table 1 (1.3) and converted from MG to cfs. If the maximum diversion rate exceeds the permitted amount of 365.15 cfs, the cell will be highlighted in red.
- (6.4) Monthly Diversions. This is the sum of diversions by month in acre-feet. It is taken from Table 2 (2.7). If the monthly or annual diversions exceed the permitted diversion amount of 175,000 acre-feet, the cell will be highlighted red.

TABLE 7 – SUMMARY OF ENVIRONMENTAL FLOWS

This table summarizes the environmental flow releases and credits taken at FM 409 in compliance with the environmental flow regime for the Reservoir. The columns in the table are developed as follows:

- (7.1) Season. This is the environmental flow season to which the data apply.
- (7.2) <u>Maximum Base Flow.</u> This is maximum base flow value (in cfs) released from the Reservoir during the corresponding season. It is taken from Table 3 (AV4:AX4). Subsistence base flows are taken from Table 3 (AY4).
- (7.3) Minimum Base Flow. This is minimum base flow value (in cfs) released from the Reservoir during the corresponding season. It is taken from Table 3 (AV3:AX3). Subsistence base flows are taken from Table 3 (AY3).
- (7.4) Average Base Flow. This is average base flow value (in cfs) released from the Reservoir during the corresponding season. It is taken from Table 3 (AV5:AX5). Subsistence base flows are taken from Table 3 (AY5).
- (7.5) <u>Pulse Flow FM 409 Credit.</u> This is the number of pulse credits taken at FM 409 by calendar season. It is taken from Column (3.27) of Table 3.
- (7.6) <u>Pulse Flows Reservoir Release Credit.</u> This is the number of pulses released from the Reservoir by calendar season. It is taken from Column (3.28) of Table 3.

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- (7.7) <u>Pulse Flows Total Credit.</u> This is the total number of pulse credits for the calendar year by season. It is the sum of Columns (7.5) and (7.6).
- (7.8) Freshet Flow FM 409 Credit. This is the number of freshet credits taken at FM 409 by calendar year. It is taken from Column (4.20) of Table 4. This statistic is given only as a total for the calendar year.
- (7.9) <u>Freshet Flows Reservoir Release Credit.</u> This is the number of freshets released from the Reservoir during a calendar year. It is taken from Column (4.21) of Table 4. This statistic is given only as a total for the calendar year.
- (7.10) Freshet Flows Total Credit. This is the total number of freshets that occurred naturally at FM 409 or released from the Reservoir during subsistence conditions for the calendar year. It is the sum of Columns (7.8) and (7.9). This statistic is given only as a total for the calendar year.
- (7.11) Number of Days with Flows Greater than 500 cfs at FM 100. This is calculated from Column (1.10) of Table 1. This statistic is given only as a total for the calendar year.



Public Involvement Plan Form for Permit and Registration Applications

The Public Involvement Plan is intended to provide applicants and the agency with information about how public outreach will be accomplished for certain types of applications in certain geographical areas of the state. It is intended to apply to new activities; major changes at existing plants, facilities, and processes; and to activities which are likely to have significant interest from the public. This preliminary screening is designed to identify applications that will benefit from an initial assessment of the need for enhanced public outreach.

All applicable sections of this form should be completed and submitted with the permit or registration application. For instructions on how to complete this form, see TCEQ-20960-inst.

Secuo	1. Preliminary Screening		
	⊠ New Permit or Registration Application		
□ New	Activity – modification, registration, amendment, facility, etc. (see instructions)		
If ne	ither of the above boxes are checked, a Public Involvement Plan is not necessary. Completion of the remaining sections not required.		
Section	1 2. Secondary Screening		
	ires public notice,		
The second of th	sidered to have significant public interest, <u>and</u>		
	ted within any of the following geographical locations:		
 Austin San Antonio 			
•	• Dallas • West Texas		
•	Fort Worth • Texas Panhandle		
•	Houston • Along the Texas/Mexico Border		
•	Other geographical locations should be decided on a case-by-case basis		
If all o	f the above boxes are not checked, a Public Involvement Plan is not necessary. Stop after Section 2.		
🛛 Publ	☑ Public Involvement Plan not applicable to this application. Provide brief explanation.		
A Public Involvement Plan is not applicable to this Application because the location is outside of the listed geographical			
locations a	nd is not considered to have significant public interest. As such, a Public Involvement Plan is not required.		
Section	n 3. Application Information		
Type o	f Application (check all that apply):		
Air	\square Initial \square Federal \square Amendment \square Standard Permit \square Title V		
Waste	☐ Municipal Solid Waste ☐ Industrial and Hazardous Waste		
	□ Radioactive Materials Licensing □ Underground Injection Controls		



Water Quality □ Texas Pollutant Discharge Elimination System (TPDES) □ Texas Land Application Permit (TLAP) □ State Only Concentrated Animal Feeding Operation (CAFO) □ Water Treatment Plant Residuals Disposal Permit □ Class B Biosolids Land Application Permit □ Domestic Septage Land Application Registration
Water Rights New Permit
□ New Appropriation of Water□ New or existing reservoir
Amendment to an Existing Water Right Add a New Appropriation of Water Add a New or Existing Reservoir Major Amendment that could affect other water rights or the environment
Section 4. Plain Language Summary
Provide a brief description of planned activities.
Section 5. Community and Demographic Information
Community information can be found using EPA's EJ Screen, U.S. Census Bureau information, or generally available demographic tools.
Information gathered in this section can assist with the determination of whether alternative language notice is necessary. Please provide the following information.
(City)
(County)



(Census Tract)
Please indicate which of these three is the level used for gathering the following information. □ City □ County
□ Census Tract
(a) Percent of people over 25 years of age who at least graduated from high school
(b) Per capita income for population near the specified location
(c) Percent of minority population and percent of population by race within the specified location
(d) Percent of Linguistically Isolated Households by language within the specified location
(e) Languages commonly spoken in area by percentage
(f) Community and/or Stakeholder Groups
(g) Historic public interest or involvement
Section 6. Planned Public Outreach Activities
Section 6. Planned Public Outreach Activities (a) Is this application subject to the public participation requirements of Title 30 Texas Administrative Code (30 TAC) Chapter 39?
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 (a) Is this application subject to the public participation requirements of Title 30 Texas Administrative Code (30 TAC) Chapter 39? □ Yes □ No (b) If yes, do you intend at this time to provide public outreach other than what is required by rule? □ Yes □ No If Yes, please describe. If you answered "yes" that this application is subject to 30 TAC Chapter 39, answering the remaining questions in Section 6 is not required. (c) Will you provide notice of this application in alternative languages?
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 (a) Is this application subject to the public participation requirements of Title 30 Texas Administrative Code (30 TAC) Chapter 39? ☐ Yes ☐ No (b) If yes, do you intend at this time to provide public outreach other than what is required by rule? ☐ Yes ☐ No If Yes, please describe. If you answered "yes" that this application is subject to 30 TAC Chapter 39, answering the remaining questions in Section 6 is not required. (c) Will you provide notice of this application in alternative languages? ☐ Yes ☐ No Please refer to Section 5. If more than 5% of the population potentially affected by your application is Limited English Proficient, then you are required to provide notice in the alternative language.



☐ Mailed by TCEQ's Office of the Chief Clerk
□ Other (specify)
(d) Is there an opportunity for some type of public meeting, including after notice?
□ Yes □ No
(e) If a public meeting is held, will a translator be provided if requested?
□ Yes □ No
(f) Hard copies of the application will be available at the following (check all that apply):
☐ TCEQ Regional Office
☐ TCEQ Central Office
□ Public Place (specify)
Section 7. Voluntary Submittal For applicants voluntarily providing this Public Involvement Plan, who are not subject to formal public participation requirements.
Will you provide notice of this application, including notice in alternative languages?
□ Yes □ No
What types of notice will be provided?
□ Publish in alternative language newspaper
□ Posted on Commissioner's Integrated Database Website
☐ Mailed by TCEQ's Office of the Chief Clerk
□ Other (specify)