



# July 2022 Update to the Texas Water Quality Management Plan

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Prepared by  
Water Quality Division, Office of Water

TCEQ SFR-121/2022-04  
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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY • PO BOX 13087 • AUSTIN,  
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Prepared by the  
Office of Water  
Water Quality Division

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Developed in accordance with Sections 205(j), 208,  
and 303 of the Federal Clean Water Act  
and applicable regulations thereto.

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## Introduction

The Texas Water Quality Management Plan (WQMP) is the product of a wastewater treatment facility (WWTF) planning process developed and updated in accordance with provisions of Sections 205(j), 208, and 303 of the federal Clean Water Act (CWA), as amended. The WQMP is an important part of the State's program for accomplishing its clean water goals.<sup>1</sup>

The Texas Department of Water Resources, a predecessor agency of the Texas Commission on Environmental Quality (TCEQ), prepared the initial WQMP for waste treatment management during the late 1970s. The Clean Water Act mandates that the WQMP be updated as needed to fill information gaps and revise earlier certified and approved plans. Any updates to the plan need involve only the elements of the plan that require modification. The original plan and its subsequent updates are collectively referred to as the "State of Texas Water Quality Management Plan."

The WQMP is tied to the State's water quality assessments that identify priority water quality problems. WQMPs are used to direct planning for implementation measures that control and/or prevent water quality problems. Several elements may be contained in the WQMP, such as effluent limitations of wastewater facilities, total maximum daily loads (TMDLs), nonpoint source management controls, identification of designated management agencies, and groundwater and source-water protection planning. Some of these elements may be contained in separate documents, which are prepared independently of the current WQMP update process, but may be referenced as needed to address planning for water quality control measures.

This document, as with previous updates<sup>2</sup>, will become part of the WQMP after completion of the public comment period, certification by TCEQ, and approval by the United States Environmental Protection Agency (EPA).

The materials presented in this document revise only the information specifically addressed in the following sections. Previously certified and approved WQMPs remain in effect.

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<sup>1</sup> See the formal definition of a water quality management plan in Title 40 Code of Federal Regulations (CFR) 130.2(k).

<sup>2</sup> Fiscal Years 1974, 1975, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984/85, 1986/88, 1989, 1990, 1991, 1992, 1993/94, 1995, 1996, 1997/98, 02/1999, 05/1999, 07/1999, 10/1999, 01/2000, 04/2000, 07/2000, 10/2000, 01/2001, 04/2001, 07/2001, 10/2001, 01/2002, 04/2002, 07/2002, 10/2002, 01/2003, 04/2003, 07/2003, 10/2003, 01/2004, 04/2004, 07/2004, 10/2004, 01/2005, 04/2005, 07/2005, 10/2005, 01/2006, 04/2006, 07/2006, 10/2006, 01/2007, 04/2007, 07/2007, 10/2007, 01/2008, 04/2008, 07/2008, 10/2008, 01/2009, 04/2009, 07/2009, 10/2009, 01/2010, 04/2010, 07/2010, 10/2010, 01/2011, 04/2011, 07/2011, 10/2011, BPUB 2011, 01/2012, 04/2012, 07/2012, 10/2012, 01/2013, 04/2013, 07/2013, 10/2013, 01/2014, 04/2014, 07/2014, 10/2014, 01/2015, 04/2015, 07/2015, 10/2015, 01/2016, 04/2016, 07/2016, 10/2016, 01/2017, 04/2017, 07/2017, 10/2017, 01/2018, 04/2018, 07/2018, 10/2018, 01/2019, Terra Verde 2019, 04/2019, 07/2019, 10/2019, 01/2020, 04/2020, 07/2020, 10/2020, 01/2021, 04/2021, 07/2021, 10/2021, 01/2022, and 04/2022.

The July 2022 WQMP update addresses the following topics for water quality planning purposes:

1. Projected Effluent Limits Updates
2. Service Area Population for Municipal WWTFs
3. Designation of Management Agencies for Municipal WWTFs
4. Total Maximum Daily Load (TMDL) Updates

The public comment period for the draft July WQMP update was from August 12, 2022 through September 13, 2022.

The “Projected Effluent Limit Update” section provides information compiled from May 1, 2022, through July 31, 2022, and is based on Texas water quality standards (WQS). Projected effluent limits may be used for water quality planning purposes in Texas Pollutant Discharge Elimination System (TPDES) permit actions.

The “Service Area Population” and “Designation of Management Agencies” sections for municipal wastewater facilities were developed and evaluated by TCEQ in cooperation with the Texas Water Development Board (TWDB) and regional water quality management planning agencies.

The “Total Maximum Daily Load Update” section provides information on proposed wasteload allocations for new dischargers and revisions to existing TMDLs and was developed by the TCEQ TMDL Program in the Water Quality Planning Division.

## Projected Effluent Limit Updates

Table 1 reflects proposed effluent limits for new dischargers and preliminary revisions to original proposed effluent limits for preexisting dischargers. Abbreviations used in the table heading include:

- BOD<sub>5</sub>–5-Day Biochemical Oxygen Demand
- CBOD<sub>5</sub>–5-Day Carbonaceous Biochemical Oxygen Demand
- DO–Dissolved Oxygen
- lbs/day–Pounds per Day
- MGD–Million Gallons per Day
- mg/L–Milligrams per Liter
- NH<sub>3</sub>-N–Ammonia-Nitrogen

Effluent flows indicated in Table 1 reflect future needs and do not reflect current permits for these facilities. These revisions may be useful for water quality management planning purposes. The effluent flows and constituent limits indicated in the table have been preliminarily determined to be appropriate to satisfy the stream standards for dissolved oxygen in their respective receiving waters. These flow volumes and effluent sets may be modified at the time of permit action. These limits are based on the Texas WQS effective at the time of the production of this update. The WQS are subject to revision on a triennial basis.

**Table 1. Projected Effluent Limit Updates**

State Permit Number	Segment Number	EPA ID Number	Permittee Name and County	Flow (MGD)	CBOD <sub>5</sub> (mg/L)	CBOD <sub>5</sub> (lbs/day)	NH <sub>3</sub> -N (mg/L)	NH <sub>3</sub> -N (lbs/day)	BOD <sub>5</sub> (mg/L)	BOD <sub>5</sub> (lbs/day)	DO (mg/L)	Months/ Comments
10027-003	0823	TX0047180	City of Denton	30	5	1001.00	1	250.20			6	March – October (more stringent CBOD <sub>5</sub> loading limit than that which would correspond to the concentration limit)
				30	7	1751.40	2	500.40			6	November – February
10495-078	1016	TX0034916	City of Houston Harris	14	10	1167.60	3	350.28			4	April – October
				14	10	1167.60	5	583.80			4	November – March
10567-002	0814	TX0126179	City of Alvarado Johnson	2.6	10	216.84	3	65.05			4	
10575-004	0404	TX0105171	City of Mount Pleasant Titus	5.0	5	208.50	1.7	70.89			6	April – October/ Outfall 001B
				5.0	5	208.50	3	125.10			4	November – March/ Outfall 001B



State Permit Number	Segment Number	EPA ID Number	Permittee Name and County	Flow (MGD)	CBOD <sub>5</sub> (mg/L)	CBOD <sub>5</sub> (lbs/day)	NH <sub>3</sub> -N (mg/L)	NH <sub>3</sub> -N (lbs/day)	BOD <sub>5</sub> (mg/L)	BOD <sub>5</sub> (lbs/day)	DO (mg/L)	Months/Comments
10838-003	0601	TX0111589	Jefferson County Water Control & Improvement District 10 Jefferson	0.9	20	150.12	12	90.07			4	Outfall 002
11041-002	1810	TX0119466	City of Kyle Hays	12	5	500.40	2	200.16			5	
11329-001	1001	TX0023230	Newport MUD Harris	2.0	10	166.80	2	33.36			6	
14469-001	0507	TX0126110	North Texas Municipal Water District Rockwall	7.0	10	583.80	2	116.76			6	
14478-001	2426	TX0126187	Lake MUD Harris	0.315	10	26.27	3	7.88			5	
14779-001	1402	TX0129429	Pine Cove, Inc. Colorado	0.08					10	6.67	4	
14889-001	1242	TX0129437	City of Waco McLennan	4.0	7	233.52	2	66.72			5	
15065-001	1010	TX0133906	East Montgomery County MUD No. 5 Montgomery	0.675	10	56.30	2	11.26			6	
16093-001	1227	TX0142271	TCCI Land Development, Inc. Johnson	0.51	10	42.53	2	8.51			5	

State Permit Number	Segment Number	EPA ID Number	Permittee Name and County	Flow (MGD)	CBOD <sub>5</sub> (mg/L)	CBOD <sub>5</sub> (lbs/day)	NH <sub>3</sub> -N (mg/L)	NH <sub>3</sub> -N (lbs/day)	BOD <sub>5</sub> (mg/L)	BOD <sub>5</sub> (lbs/day)	DO (mg/L)	Months/Comments
16101-001	1009	TX0142344	East Lake Houston Management District Harris	0.1575	10	13.14	3	3.94			4	
16102-001	0826	TX0142352	Shoop Ranch Utility Company, LLC Denton	2.0	7	116.76	2	33.36			6	
16103-001	0805	TX0142361	Stephen Richard Selinger Ellis	0.5	10	41.70	3	12.51			4	
16105-001	0821	TX0142387	WWTP East Celina, LLC Collin	1.1	5	45.87	1	9.17			6	
16110-001	1014	TX0142433	Terrance Hlavinka Cattle Co., LLC Waller	0.95	10	79.23	2	15.85			6	
16113-001	1008	TX0142450	Kickapoo Asset LLC Waller	0.09	10	7.51	3	2.25			6	
16116-001	1010	TX0142492	Crystal Springs Water Co., Inc. Montgomery	0.14	10	11.68	3	3.50			4	
16117-001	1009	TX0142506	Century Land Holdings of Texas, LLC Harris	0.15	10	12.51	3	3.75			6	

State Permit Number	Segment Number	EPA ID Number	Permittee Name and County	Flow (MGD)	CBOD <sub>5</sub> (mg/L)	CBOD <sub>5</sub> (lbs/day)	NH <sub>3</sub> -N (mg/L)	NH <sub>3</sub> -N (lbs/day)	BOD <sub>5</sub> (mg/L)	BOD <sub>5</sub> (lbs/day)	DO (mg/L)	Months/Comments
16118-001	0818	TX0142514	MM Terrell 1098, LLC Kaufman	0.9	5	37.53	2	15.01			4	
16120-001	0801	TX0142531	GoLive Acquisitions LLC Chambers	0.015	10	1.25	3	0.38			6	
16121-001	0803	TX0142557	Cho-Yeh Camp and Conference Center, Inc. Polk	0.025	10	2.09	3	0.63			6	
16123-001	1204	TX0142565	Cresson MUD No. 1 of Hood County Hood	0.6	5	25.02	2	10.01			4	
16124-001	1206	TX0142581	Gilden Blair Blackburn and Timothy Edward Carter Parker	0.075	10	6.26	3	1.88			4	
16126-001	0830	TX0142573	ABR Energy Johnson	0.7	10	58.38	2	11.68			5	
16127-001	0805	TX0142590	SRP SS LLC Ellis	0.5	5	20.85	2	8.34			4	
16130-001	1228	TX0142611	City of Godley Johnson	1.9	5	79.23	1.9	30.11			6	
16132-001	1248	TX0142603	The Vantage Austin LLC Williamson	0.45	5	18.77	2	7.51			5	

State Permit Number	Segment Number	EPA ID Number	Permittee Name and County	Flow (MGD)	CBOD <sub>5</sub> (mg/L)	CBOD <sub>5</sub> (lbs/day)	NH <sub>3</sub> -N (mg/L)	NH <sub>3</sub> -N (lbs/day)	BOD <sub>5</sub> (mg/L)	BOD <sub>5</sub> (lbs/day)	DO (mg/L)	Months/Comments
16133-001	2485	TX0142620	FM 665 Land Company LTD Nueces	0.15	5	6.26	2	2.50			4	
16134-001	0823	TX0142638	Tabor Ranch LLC and Beall Legacy Partners LP Denton	0.6	7	35.03	2	10.01			5	
16136-001	1202	TX0142654	Bluestem Development Company, LLC Waller	0.35	10	29.19	3	8.76			4	
16137-001	1002	TX0142662	Liberty County Utilities, LLC Liberty	0.975	5	40.66	2	16.26			5	
16140-001	0821	TX0142671	Norman Dean and Carol Joan Oswald Collin	0.25	10	20.85	2	4.17			4	
16141-001	1302	TX0142701	Astro Rosenberg LP Fort Bend	1.2	7	70.06	2	20.02			6	
16142-001	1001	TX0142719	East Lake Houston Management District Harris	0.7	5	29.19	1.9	11.09			6	
16144-001	1008	TX0142735	Starlight Homes Texas LLC Montgomery	0.18	10	15.01	3	4.50			4	

State Permit Number	Segment Number	EPA ID Number	Permittee Name and County	Flow (MGD)	CBOD <sub>5</sub> (mg/L)	CBOD <sub>5</sub> (lbs/day)	NH <sub>3</sub> -N (mg/L)	NH <sub>3</sub> -N (lbs/day)	BOD <sub>5</sub> (mg/L)	BOD <sub>5</sub> (lbs/day)	DO (mg/L)	Months/Comments
16145-001	1434	TX0142743	Preserve Hutto, LLC Travis	0.048	5	2.00	2	0.80			4	
16146-001	1244	TX0142751	Wilco MUD 45 WWTP LLC Williamson	3.0	5	125.10	2	50.04			4	
16147-001	0507	TX142786	GRBK Edgewood, LLC Hunt	0.5	5	20.85	2	8.34			4	
16149-001	1808	TX0142808	Austin Mark Ventures, LLC Guadalupe	0.2	5	8.34	2	3.34			5	
16150-001	1911	TX0142816	HK Real Estate Development LLC Wilson	0.18	5	7.51	2	3.00			5	
16154-001	1810	TX0142832	Civitas at Buda, LLC Hays	0.5	10	41.70	3	12.51			4	
16155-001	0838	TX0142841	Pleasant Point MHP, LLC Johnson	0.342	10	28.52	3	8.56			4	
16159-001	1011	TX0142875	Peach Creek TX LLC Walker	0.2	10	16.68	3	5.00			4	
16160-001	1006	TX0142883	Sunny Flea Market, Inc. Harris	0.1	10	8.34	3	2.50			4	

State Permit Number	Segment Number	EPA ID Number	Permittee Name and County	Flow (MGD)	CBOD <sub>5</sub> (mg/L)	CBOD <sub>5</sub> (lbs/day)	NH <sub>3</sub> -N (mg/L)	NH <sub>3</sub> -N (lbs/day)	BOD <sub>5</sub> (mg/L)	BOD <sub>5</sub> (lbs/day)	DO (mg/L)	Months/Comments
16162-001	0838	TX0142891	Megatel Homes, LLC Johnson	1.0	10	83.40	3	25.02			4	
16163-001	1808	TX0142905	Highlander Real Estate Partners, LLC Hays	0.4	5	16.68	2	6.67			4	
16166-001	0805	TX0142930	BBCP FTW 117, LLC Ellis	0.5	5	20.85	2	8.34			4	
16174-001	1010	TX0142999	Rockpoint 1375 LLC Walker	0.7	10	58.38	3	17.51			6	
16175-001	1009	TX0143006	Waller County MUD No. 34C Waller	0.99	7	57.80	2	16.51			6	
16180-001	1003	TX0143081	Texas Water Utilities LP Liberty	0.99	10	82.57	3	24.77			4	

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## Planning Information Summary

The Water Quality Planning Division of TCEQ coordinated with TWDB and regional planning agencies to compile the wastewater facility information in this section. Domestic facility financing decisions under the State Revolving Fund (SRF) loan program must be consistent with the certified and approved WQMP.

The purpose of this section is to present data reflecting facility-planning needs, including previous water quality management plan needs requiring revision. Data are also presented to update other plan information for TWDB's SRF projects. Table 2 contains the updated service area population information. The table is organized in alphabetical order and includes the following 10 categories of information:

1. *Planning Area* – Area for which facility needs are proposed. The facility planning areas are subject to change during the facility planning process and any such changes will be documented in a later water quality management plan update. All planning areas listed are also designated management agencies (DMAs) unless otherwise noted in the “Comments” column.
2. *Service Area* – Area that receives the provided wastewater service.
3. *Needs* – A “T” indicates a need for either initial construction of a WWTF, additional treatment capacity, or the upgrading of a WWTF to meet existing or more stringent effluent requirements. A “C” indicates a need for improvements to, expansion of, rehabilitation of, or the initial construction of a wastewater collection system in the facility planning area. “T/C” indicates a need for both treatment and collection system facilities. More detailed facility planning conducted during a construction project may define additional needs and those needs will be reflected in a future update to the WQMP. A “F” indicates a need for flood mitigation.
4. *Needs Year* – The year in which the needs were identified for the planning area.
5. *Basin Name* – The river basin or designated planning entity for a designated planning area. The seven water quality management planning areas designated by the Governor are each administered by a Council of Governments (COG), a Development Council (DC), or a Planning Council (PC). Basin names are shown for areas outside one of these planning areas. The designated planning areas and their associated administering entities are:
  - a. Corpus Christi – Coastal Bend COG (CBCOG)
  - b. Killeen-Temple – Central Texas COG (CTCOG)
  - c. Texarkana – Ark-Tex COG (ATCOG)
  - d. Southeast Texas – South East Texas Regional Planning Council (SETRPC)
  - e. Lower Rio Grande Valley – Lower Rio Grande Valley Development Council (LRGVDC)
  - f. Dallas-Fort Worth – North Central Texas COG (NCTCOG)

g. Houston – Houston-Galveston Area Council (H-GAC)

6. Segment – The classified stream segment or tributary into which any recommended facility may discharge existing or projected wastewater. In the case of no-discharge facilities, this is the classified stream segment drainage area in which the facilities are located.
7. County – The county in which the facility planning area is located.
8. Date – The date the planning information was reviewed by TCEQ.
9. Comments – Additional explanation or other information concerning the facility planning area.
10. Population – The base year and projected populations for each facility planning area. Population projections presented are consistent with the latest available statewide population projections or represent the most current information obtained from facility planning analyses.

The facility information in this section is intended to be used in the preparation of facility plans and the subsequent design and construction of wastewater facilities. Design capacities of the treatment and collection systems will be based upon the population projections contained in this document, plus any additional needed capacity established for commercial/industrial flows and documented infiltration/inflow volumes (treatment or rehabilitation).

The probable needs shown under the “Needs” heading are preliminary findings; specific needs for an area must be as established in the completed and certified, detailed engineering studies conducted during facility planning under the SRF and other state loan programs.

Specific recommended effluent quality for any wastewater discharges resulting from any of the facilities in this document will be in accordance with the rule in the Texas WQS in effect at the time the permit is issued for a specific facility.



**Table 2. Service Area Population Updates**

Planning Agency	Service Area	Needs	Needs Year	Basin Name / COG	Segment	County	WQMP Date	Comments	Year	Population
City of Corrigan	City boundary	T/C	2050	Trinity River	0604	Polk	05/05/2022	The proposed expansion of the plant is not permitted under the permittee's current authorization (TPDES Permit No. WQ0015057001) to discharge a daily average flow of 0.30 MGD from the existing facility.	2021	1892
									2030	2091
									2035	2175
									2040	2263
City of Whitewright	Project service area	T/C	2050	Red River	0202	County	05/26/2022	Rehabilitating the existing plant to include new clarifiers, aeration basins, sludge handling facilities, required site work, piping and equipment, and modification to the facilities as required.	2020	1906
									2025	1918
									2030	1930
									2040	1953

Planning Agency	Service Area	Needs	Needs Year	Basin Name / COG	Segment	County	WQMP Date	Comments	Year	Population
City of Iola	Project service area	T/C	2050	Brazos	1209	Grimes	06/01/2022	The project is for construction of a sanitary sewer collection system and WWTF for first-time wastewater services for the City of Iola. The collection system and WWTF will replace existing individual OSSFs present throughout the community, a large number of which are failing. The collection system will include various lift stations, gravity lines, force mains, and manholes.	2020	434
									2025	440
									2030	475
									2040	505
Pecos City	Project service area	T	2040	Rio Grande	2311	Reeves	05/25/2022	Expansion and replacement of existing WWTF	2020	10660
									2025	11036
									2030	11413
									2040	11977
City of Marble Falls	Project service area	T	2029	Colorado	1405	Burnet	7/12/2022	WWTF effluent management study and treatment design	2021	7037
									2030	15344
									2040	22759
									2050	32039

## Designated Management Agencies

To be designated as a management agency for wastewater collection or treatment, an entity must demonstrate the legal, institutional, managerial and financial capability necessary to carry out the entity's responsibilities in accordance with Section 208(c) of the Clean Water Act (see below list of requirements). Before an entity can apply for an SRF loan, it must be recommended for designation as the management agency in the approved WQMP.

Designation as a management agency does not require the designated entity to provide wastewater services, but enables it to apply for grants and loans to provide those services. The facilities listed in Table 3 have submitted DMA resolutions to TCEQ. TCEQ submits this DMA information to EPA for approval as an update to the WQMP.

### Section 208 (c) (2) Requirements for Management Agency

208(c)(2)(A): to carry out portions of an area-wide waste treatment plan.

208(c)(2)(B): to manage waste treatment works.

208(c)(2)(C): directly or by contract to design and construct new works.

208(c)(2)(D): to accept and utilize grants.

208(c)(2)(E): to raise revenues, including assessment of waste treatment charges.

208(c)(2)(F): to incur short and long term indebtedness.

208(c)(2)(G): to assure community pays proportionate cost.

208(c)(2)(H): to refuse to receive waste from non-compliant dischargers.

208(c)(2)(I): to accept for treatment industrial wastes.

**Table 3. Designated Management Agencies**

Planning Agency	Service Area	DMA Needs	DMA Date
City of Corrigan	City boundary	T/C	10/22/2021
City of Whitewright	Project service area	T/C	06/23/2021
City of Iola	Project service area	T/C	10/01/2018
Pecos City	Project service area	T	09/26/2019
City of Marble Falls	Project service area	T	12/15/2021

## **Total Maximum Daily Load Revisions**

The TMDL Program works to improve water quality in impaired or threatened waters bodies in Texas. The program is authorized by and created to fulfill the requirements of Section 303(d) of the federal Clean Water Act.

The goal of a TMDL is to restore the full use of a water body that has limited quality in relation to one or more of its uses. The TMDL defines an environmental target, and based on that target, TCEQ and stakeholders develop an implementation plan with wasteload allocations for point source dischargers to mitigate human-caused sources of pollution within the watershed and restore full use of the water body.

TMDLs are developed based on intensive data collection and scientific analysis. After adoption by TCEQ, TMDLs are submitted to EPA for review and approval.

The attached appendixes may reflect proposed wasteload allocations for new dischargers and/or additions or revisions to TMDLs. Updates and addendums will be provided in the same units of measure used in the original TMDL document and will include the segment and assessment unit (AU) numbers of the affected segments. Also, note that for bacteria TMDLs, loads will typically be expressed as colony-forming units per day (cfu/day). On occasion, other expressions may be used due to different laboratory methods, such as counts or most probable number per day. For the purposes of the TMDL program, these terms are considered to be synonymous.

## **Appendix I. Updates to Eighteen Total Maximum Daily Loads for Bacteria in Buffalo and Whiteoak Bayous and Tributaries**

**Segments 1013, 1013A, 1013C, 1014, 1014A, 1014B, 1014E, 1014H, 1014K, 1014L, 1014M, 1014N, 1014O, 1017, 1017A, 1017B, 1017D, and 1017E**

This appendix provides updates to TMDLs previously submitted through the state's WQMP for: Buffalo and Whiteoak Bayous and Tributaries.

The report *Eighteen Total Maximum Daily Loads for Bacteria in Buffalo and Whiteoak Bayous and Tributaries For Segment Numbers 1013, 1013A, 1013C, 1014, 1014A, 1014B, 1014E, 1014H, 1014K, 1014L, 1014M, 1014N, 1014O, 1017, 1017A, 1017B, 1017D, and 1017E* was adopted by TCEQ on 04/08/09 and approved by EPA on 06/11/09. Upon EPA approval, the TMDLs became part of the state's WQMP.

The Texas WQMP has since been updated 31 times prior to this update for this TMDL. The previous updates have revised the list of individual WLAs in the original TMDL document. Additionally, TCEQ submitted addenda to the original TMDL in the April 2013, April 2015, and January 2021 WQMP updates. These addenda added three new AUs to the original TMDL project.

The purpose of this update is to make the following changes to the TMDL (presented in Table I-1):

- add one new permit,
- remove one expired permit, and
- remove one cancelled permit.

The changes reflected in this update resulted in the shifting of allocations between the sum of the individual WLAs and the allowance for future growth (FG) in two AUs. This was originally presented in Table 53 in the original TMDL document. The affected AUs in this update are included here as Table I-2.

In Table 54 of the original TMDL, the WLAs for permitted facilities are the sum of the individual WLAs and the allowance for FG within each AU. These overall numbers did not change; Table 54 of the original TMDL remains the same.

**Table I-1 - Change to individual WLAs for the TMDL watershed**

Updates Table 45, p. 99-103 in the original TMDL document.

The WLA is expressed in billion MPN/day *E. coli*.

State Permit Number	Outfall	EPA Permit Number	AU	Permittee Name	Flow (MGD)	WLA	TMDL Comments
13228-001	001	TX0100137	1014B_01	FORT EBDN CO MUD 050	NA	NA	Cancelled permit
16110-001	001	TX0142433	1014B_01	TERRANCE HLAVINKA CATTLE CO., LLC	0.95	2.266	New permit
04627-000	001	TX0118095	1017_01	QUALITY PRODUCT FINISHING, INC.	NA	NA	Expired permit

**Table I-2 - TMDL summary calculations for two AUs in the TMDL watershed**

Updates Table 53, p. 116-117 in the original TMDL document.

All loads expressed as billion MPN/day *E. coli*.

AU	Segment Name	TMDL	WLA wwTF	WLA sw	LA	MOS	Upstream Load	FG
1014B_01	Buffalo Bayou	626.91	103.23	482.44	38.60	0	0	2.64
1017_01	Whiteoak Bayou Above Tidal	173.57	72.99	58.94	6.55	0	0	35.09

## Appendix II. Update to Four Total Maximum Daily Loads for Indicator Bacteria in Halls Bayou and Tributaries

### Assessment Units 1006D\_01, 1006D\_02, 1006I\_01, and 1006J\_01

This appendix provides updates to TMDLs previously submitted through the state's WQMP for: Halls Bayou and Tributaries (1006D, 1006I, and 1006J).

The report *Four Total Maximum Daily Loads for Indicator Bacteria in Halls Bayou and Tributaries For Segment Numbers 1006D, 1006I, and 1006J* was adopted by TCEQ on September 15, 2010 and approved by EPA on September 27, 2010. Upon EPA approval, the TMDLs became part of the state's WQMP.

The Texas WQMP has since been updated eight times prior to this update. The previous updates have revised the list of individual WLAs in the original TMDL document.

The purpose of this update is to make the following change to the TMDL:

- add one new permit (presented in Table II-1)

The changes reflected in this update resulted in the shifting of allocations between the sum of the individual WLAs and the allowance for future growth (FG) in two AUs. The WLA allocation was originally presented in Table 18 in the original TMDL document. The two affected AUs in this update are included here as Table II-2.

In Table 19 of the original TMDL, the WLAs for permitted facilities are the sum of the individual WLAs and the allowance for FG within each AU. These overall numbers did not change; Table 19 of the original TMDL remains the same.

**Table II-1 - Changes to individual WLAs for the Halls Bayou watershed**

Updates Table 16, p. 35-36 in the original TMDL document.

The WLA is expressed in *E. coli* billion MPN/day.

State Permit Number	Outfall	EPA Permit Number	AU	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA)	TMDL/ Comments
16160-001	001	TX0142883	1006D_02	SUNNY FLEA MARKET, INC.	0.1	0.238	New permit

**Table II-2 - TMDL summary calculations for two AUs in the Halls Bayou watershed**

Updates Table 18, p. 41 in the original TMDL document.

All loads expressed as billion MPN/day.

<b>AU</b>	<b>Sampling Location</b>	<b>Stream Name</b>	<b>TMDL</b>	<b>WLA WWTF</b>	<b>WLA SW</b>	<b>LA</b>	<b>MOS</b>	<b>Future Growth</b>
1006D_01	20023	Halls Bayou	463	42.80	385.40	0.00	23.20	11.60
1006D_02	11126	Halls Bayou	280	25.87	233.00	0.00	14.00	7.13



## **Appendix III. Updates to Fifteen TMDLs for Indicator Bacteria in Watersheds Upstream of Lake Houston**

### **Segments 1004E, 1008, 1008H, 1009, 1009C, 1009D, 1009E, 1010, and 1011**

This appendix provides updates to TMDLs previously submitted through the state's WQMP for: Watersheds Upstream of Lake Houston.

The report *Fifteen Total Maximum Daily Loads for Indicator Bacteria in Watersheds Upstream of Lake Houston For Segment Numbers 1004E, 1008, 1008H, 1009, 1009C, 1009D, 1009E, 1010, and 1011* was adopted by TCEQ on 04/06/11 and approved by EPA on 06/29/11. Upon EPA approval, the TMDLs became part of the state's WQMP.

The Texas WQMP has since been updated 38 times prior to this update for this TMDL. The previous updates have revised the list of individual WLAs in the original TMDL document. Additionally, TCEQ submitted four addenda to the original TMDL in the October 2013, October 2019, October 2020, and April 2022 WQMP updates. These addenda added 10 new AUs to the original TMDL project.

The purpose of this update is to make the following changes to the TMDL (presented in Table III-1):

- update an existing permit with increased discharge,
- add seven new permits,
- remove one cancelled permit, and
- update the flow route for an existing permit.

The changes reflected in this update resulted in the shifting of allocations between the sum of the individual WLAs and the allowance for FG in 11 AUs. This was originally presented in Table 18 in the original TMDL document. The 11 affected AUs in this update are included here as Table III-2.

For AUs 1008\_02, 1009\_01, and 1010\_02, the existing future growth allocations were insufficient to cover the increased flow to the AUs for this update. However, ample loading is available in the WLA<sub>StormWater</sub> and LA terms. Loading was taken from each of those terms (in a way that maintains the proportions for them as updated in the July 2016 WQMP update) and allotted to future growth for these AUs. This results in no changes to the overall TMDL allocations.

In Table 19 of the original TMDL, the WLAs for permitted facilities are the sum of the individual WLAs and the allowance for FG within each AU. Because loading was moved from the WLA<sub>StormWater</sub> and LA terms to be used for future growth for AUs 1008\_02, 1009\_01, and 1010\_02, these AUs are updated in Table III-3. These overall numbers for the other AUs did not change, and again this results in no changes to the overall TMDL allocations.

**Table III-1 - Changes to individual WLAs for the TMDL watershed**

Updates Table 16, pp. 49-56 in the original TMDL document.

The WLA is expressed in billion MPN/day *E. coli*.

State Permit Number	Outfall	EPA Permit Number	AU	Permittee Name	Flow (MGD)	WLA	TMDL Comments
16113-001	001	TX0142450	1008_02	KICKAPOO ASSET LLC	0.09	0.215	New permit
16144-001	001	TX0142735	1008_02	STARLIGHT HOMES TEXAS LLC	0.18	0.429	New permit
16117-001	001	TX0142506	1009_01	CENTURY LAND HOLDINGS OF TEXAS LLC	0.15	0.358	New permit
16175-001	001	TX0143006	1009_01	WALLER COUNTY MUD NO. 34C	0.99	2.361	New permit
16101-001	001	TX0142344	1009E_01	EAST LAKE HOUSTON MANAGEMENT DISTRICT	0.1575	0.376	New permit
16116-001	001	TX0142492	1010_02	CRYSTAL SPRINGS WATER CO., INC.	0.14	0.334	New Permit
14285-001	001	TX0124281	1010_03	C&R WATER SUPPLY, INC.	0.3	0.715	Rerouted flow from 1010_04 to 1010_03
15689-001	001	TX00138568	1010_03	CROCKETT MARTIN CORP.	n/a	n/a	Cancelled permit
15065-001	001	TX0133906	1010_04	LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.	0.675	1.610	Increased discharge
16159-001	001	TX0142875	1011_02	PEACH CREEK TX LLC	0.2	0.477	New Permit

**Table III-2 - TMDL summary calculations for 11 AUs in the TMDL watershed**

Updates Table 18, p. 61 in the original TMDL document.

All loads expressed as billion MPN/day *E. coli*.

AU	Sampling Location	Segment Name	TMDL	WLA <sub>wwTF</sub>	WLA <sub>sw</sub>	LA	MOS	FG
1008_02	11314	Spring Creek	287	14.25	69.74	188.58	14.4	0.04
1008_03	11313	Spring Creek	1420	113.66	322	869	70.9	44.44
1008_04	11312	Spring Creek	1510	149.33	334	902	75.7	48.97
1009_01	11333	Cypress Creek	227	30.02	77.83	107.48	11.4	0.27
1009_02	11331	Cypress Creek	615	115.35	196	270	30.8	2.85
1009_03	11328	Cypress Creek	1340	199.11	415	574	67.0	84.89
1009_04	11324	Cypress Creek	1550	238.28	469	648	77.4	117.32
1009E_01	14159	Little Cypress Creek	91.1	20.47	16.14	48.42	4.56	1.51
1010_02	14241	Caney Creek	245	2.00	29.97	200.61	12.3	0.12
1010_04	11334	Caney Creek	493	24.14	57.4	383.8	24.7	2.96
1011_02	17746	Peach Creek	422	13.35	34.5	348.5	21.1	4.55

**Table III-3 - TMDL final calculations**

Updates Table 19, p. 62 in the original TMDL document.

All loads expressed as billion MPN/day *E. coli*.

AU	TMDL	WLA <sub>wwTF</sub>	WLA <sub>sw</sub>	LA <sub>TOTAL</sub>	MOS
1008_02	287	14.28	69.74	188.58	14.4
1009_01	227	30.29	77.83	107.48	11.4
1010_02	245	2.12	29.97	200.61	12.3

In addition, Table III-4 below provides an update to Table 11 found in the October 2013 addendum to this TMDL project (*Addendum One to Fifteen Total Maximum Daily Loads for Indicator Bacteria in Watersheds Upstream of Lake Houston: Six Additional Total Maximum Daily Loads for Indicator Bacteria in Watersheds Upstream of Lake Houston for Segments 1008B, 1008C, 1008E, and 1011*). One of the permits discussed earlier in this update also affects one AU in this addendum.

Table III-5 below provides updates to Table 12 found in the October 2013 addendum to this TMDL project. The addendum added six AUs that were not included in the original TMDL. The AU affected here (1011\_01) was included as an upstream loading to 1011\_02 in the original TMDL. One of the permits (16159-001/ TX0142875) affects the loading of 1011\_01 as well as the original TMDL AU 1011\_02.

In Table 13 of the October 2013 TMDL addendum, the WLAs for permitted facilities are the sum of the individual WLAs and the allowance for FG within the single affected AU. Therefore, these overall numbers did not change, and Table 13 of the TMDL addendum remains the same.

**Table III-4 - Changes to individual WLAs in the Peach Creek watershed**

Updates Table 11, p. 23 in the TMDL addendum document.

The WLA is expressed in billion MPN/day *E. coli*.

State Permit Number	Outfall	EPA Permit Number	AU	Permittee Name	Flow (MGD)	WLA	TMDL Comments
16159-001	001	TX0142875	1011_01	PEACH CREEK TX LLC	0.2	0.477	New Permit

**Table III-5 - TMDL summary calculations for one AU in the Peach Creek watershed**

Updates Table 12, p. 26 in the TMDL addendum document.

All loads expressed as billion MPN/day *E. coli*.

AU	Stream Name	TMDL	MOS	WLA WWTF	WLA SW	LA AU	LA RES	LA TOTAL	Future Growth
1011_01	Peach Creek	214.1	10.7	9.04	2.87	186.77	0	186.77	4.72

Finally, Table III-6 below provides an update to Table 9 found in the October 2019 addendum to this TMDL project (*Addendum Two to Fifteen Total Maximum Daily Loads for Indicator Bacteria in Watersheds Upstream of Lake Houston: Two Total Maximum Daily Loads for Indicator Bacteria in Brushy Creek and Spring Branch For AUs 1008J\_01 and 1010C\_01*). One of the permits discussed earlier in this update also affects one AU in this addendum.

Table III-7 below provides updates to Table 10 found in the October 2019 addendum to this TMDL project. The addendum added two AUs that were not included in the original TMDL. The AU affected here (1008J\_01) was included as an upstream loading to 1008\_02 in the original TMDL. One of the permits (16113-001/ TX0142450) affects the loading of 1008J\_01 as well as the original TMDL AU 1008\_02.

For AUs 1008J\_01, the existing future growth allocation was insufficient to cover the increased flow to the AU for this update. However, ample loading is available in the WLA<sub>StormWater</sub> and LA terms. Loading was taken from each of those terms (in a way that maintains the proportions for them as updated in the that addendum) and allotted to future growth for these AUs. This results in no changes to the overall TMDL allocations.

In Table 11 of the October 2019 TMDL addendum, the WLAs for permitted facilities are the sum of the individual WLAs and the allowance for FG within the single affected AU. Because loading was moved from the WLA<sub>StormWater</sub> and LA terms to be used for future growth for AU 1008J\_01, this AU is updated in Table III-8. These overall numbers for the other AU did not change, and again this results in no changes to the overall TMDL allocations.

**Table III-6 - Changes to individual WLAs in the Brushy Creek watershed**

Updates Table 9, p. 17 in the TMDL addendum document.

The WLA is expressed in billion cfu/day *E. coli*.

State Permit Number	Outfall	EPA Permit Number	AU	Permittee Name	Flow (MGD)	WLA	TMDL Comments
16113-001	001	TX0142450	1008J_01	KICKAPOO ASSET LLC	0.09	0.215	New permit

**Table III-7 - TMDL summary calculations for one AU in the Brushy Creek watershed**

Updates Table 10, p. 19 in the TMDL addendum document.

All loads expressed as billion cfu/day *E. coli*.

Water Body	AU	TMDL	WLA <sub>WWTF</sub>	WLA <sub>SW</sub>	LA	FG	MOS
Brushy Creek	1008J_01	200.615	0.237	8.051	182.273	0.023	10.031

**Table III-8 – TMDL addendum final calculations**

Updates Table 11, p. 19 in the TMDL addendum document.

All loads expressed as billion cfu/day *E. coli*.

AU	TMDL	WLA <sub>WWTF</sub>	WLA <sub>SW</sub>	LA	MOS
1008J_01	200.615	0.26	8.051	182.273	10.031

# Appendix IV. Update to One Total Maximum Daily Load for Dissolved Oxygen in Lake O’ the Pines

## Segment 0403

This appendix provides updates to TMDLs previously submitted through the state’s WQMP for: Lake O’ the Pines.

The report *One Total Maximum Daily Load for Dissolved Oxygen in Lake O’ the Pines: For Segment 0403* was adopted by TCEQ on April 12, 2006, and approved by EPA on July 7, 2006. Upon EPA approval, the TMDL became part of the state’s WQMP.

The Texas WQMP has since been updated four times prior to this update. The previous updates have provided additional information on individual permittees in the original TMDL document.

The purpose of this update is to make the following change to the TMDL:

- Increased discharge for an existing permit (presented in Table IV-1)

Because there is no change in the wasteload allocation for total phosphorus, there are no changes to the TMDL equations.

**Table IV-1 - Changes to individual WLAs for the Lake O’ the Pines watershed**

Updates Table 2, pg. 14 in the original TMDL document.

The WLA is expressed in lb/yr, lb/day, kg/yr, and kg/day

State Permit Number	Outfall	EPA Permit Number	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) Total Phosphorus lb/yr; lb/day*	WLA Total Phosphorus kg/yr; kg/day*	TMDL/ Comments
10575-004	001	TX0105171	0404	CITY OF MOUNT PLEASANT	5.0	5,071.5; 13.89	2,300; 6.30	Total phosphorus monitoring; Increased discharge

\*These values are not permit limits. They are based on the existing load presented in Table 2 of the original TMDL. Total phosphorus monitoring will be included in this permit. The TCEQ will evaluate the self-reported total phosphorus data for all facilities discussed in the TMDL on an ongoing basis to ensure that all eight facilities as a group are meeting the combined WLA of 27,000 kg/yr of total phosphorus identified in the TMDL.

# Appendix V. Update to One Total Maximum Daily Load for Indicator Bacteria in Oso Creek

## Assessment Unit 2485A\_01

This appendix provides updates to TMDLs previously submitted through the state's WQMP for: Oso Creek.

The report *One Total Maximum Daily Load for Indicator Bacteria in Oso Creek For Segment 2485A* was adopted by TCEQ on July 31, 2019 and approved by EPA on October 25, 2019. Upon EPA approval, the TMDL became part of the state's WQMP.

The Texas WQMP has since been updated one time prior to this update. The previous update revised the list of individual WLAs in the original TMDL document.

The purpose of this update is to make the following change to the TMDL:

- add one new permit (presented in Table V-1)

The changes reflected in this update resulted in the shifting of allocations between the sum of the individual WLAs and the allowance for future growth (FG) in one AU. This was originally presented in Table 19 in the original TMDL document. The affected AU in this update is included here as Table V-2.

In Table 20 of the original TMDL, the WLAs for permitted facilities are the sum of the individual WLAs and the allowance for FG within each AU. These overall numbers did not change; Table 20 of the original TMDL remains the same.

**Table V-1 - Changes to individual WLAs for the Oso Creek watershed**

Updates Table 13, p. 36 in the original TMDL document.

The WLA is expressed in *E. coli* and Enterococci billion MPN/day.

State Permit Number	Outfall	EPA Permit Number	AU	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – <i>E. coli</i> in billion MPN/day	WLA – Enterococci in billion MPN/day	TMDL/ Comments
16133-001	1	TX0142620	2485A_01	FM 665 LAND COMPANY LTD	0.15	0.680	0.189	New permit

**Table V-2 - TMDL summary calculations for one AU in the Oso Creek watershed**

Updates Table 19, p. 42 in the original TMDL document.

All loads expressed as billion MPN/day.

<b>AU</b>	<b>Segment Name</b>	<b>TMDL</b>	<b>MOS</b>	<b>WLA WWTF</b>	<b>WLA SW</b>	<b>LA</b>	<b>Future Growth</b>
2485A_01	Oso Creek	122.068	6.103	24.191	26.748	58.874	6.152



## Appendix VI. Update to Three Total Maximum Daily Loads for Chloride, Sulfate, and Total Dissolved Solids in Petronila Creek Above Tidal Segment 2204

This appendix provides an update to TMDLs previously submitted through the state’s WQMP for: Petronila Creek Above Tidal.

The report *Three Total Maximum Daily Loads for Chloride, Sulfate, and Total Dissolved Solids in Petronila Creek Above Tidal For Segment Number 2204* was adopted by TCEQ on 01/10/07 and approved by EPA on 03/14/07. Upon EPA approval, the TMDL became part of the state’s WQMP.

The Texas WQMP has since been updated four times prior to this update for this TMDL. The previous updates have revised the list of individual WLAs in the original TMDL document.

The purpose of this update is to make the following change to the TMDL:

- replace an expired permit with a new permit (presented in Table VI-1)

Because there is no change in permitted discharge, there are no changes to the TMDL equations.

**Table VI-1 - Changes to individual WLAs for the Petronila Creek Above Tidal watershed**

Updates Table 7, p. 28 in the original TMDL document.

The WLAs are expressed in lb/day.

State Permit Number	Outfall	EPA Permit Number	Permittee Name	Flow (MGD)	Permit Implementation	WLA	TMDL Comments
11541-002	001	TX0142476	CITY OF DRISCOLL	0.1	Chloride Limit	1189	New permit (Replaces expired permit 11541-001/ TX0094145; flow and WLA numbers did not change)
					Sulfate Limit	396	
					Total Dissolved Solids Limit	3171	

## Appendix VII. Updates to Three Total Maximum Daily Loads for Bacteria in the San Antonio Area Segments 1910, 1910A, and 1911

This appendix provides updates to TMDLs previously submitted through the state's WQMP for: Salado Creek, Walzem Creek, and Upper San Antonio River.

The report *Three Total Maximum Daily Loads for Bacteria in the San Antonio Area, For Segment Numbers: 1910 – Salado Creek, 1910A – Walzem Creek, and 1911 – Upper San Antonio River* was adopted by TCEQ on 07/25/07 and approved by EPA on 09/25/07. Upon EPA approval, the TMDLs became part of the state's WQMP.

The Texas WQMP has since been updated six times prior to this update for this TMDL. The previous updates have revised the list of individual WLAs in the original TMDL document. Additionally, TCEQ submitted addenda to the original TMDL in the April 2016 and October 2019 WQMP updates. These addenda added eight assessment units to the original TMDL project.

The purpose of this update is to make the following changes to the TMDL:

- add one new permit (presented in Table VII-1)

Tables VII-2 and VII-3 provide the updated TMDL equation for the affected segment. The original TMDL used fecal coliform as the primary indicator, along with a procedure for converting fecal coliform to *E. coli*. The criteria ratio of 0.63 ( $126/200 = 0.63$ ) was applied to convert fecal coliform to *E. coli*. The original TMDL did not separate regulated stormwater loadings (WLA-MS4) from WWTF loadings, but that was addressed in the April 2009 WQMP update. Additionally, because this TMDL was developed without a specific allocation for future growth, a small amount was moved proportionately from the WLA-MS4 and LA terms to the WLA-WWTF term to accommodate the new facility and maintain the overall TMDL allocation.

**Table VII-1 - Changes to individual WLAs for the Upper San Antonio River watershed**

State Permit Number	Outfall	EPA Permit Number	Segment	Permittee Name	Flow (MGD)	WLA – Fecal Coliform 10 <sup>6</sup> org/day	WLA – <i>E. coli</i> 10 <sup>6</sup> org/day	TMDL Comments
16150-001	001	TX0142816	1911	HK REAL ESTATE DEVELOPMENT LLC	0.18	681.37	429.27	New permit

**Table VII-2 - Summary of Fecal Coliform TMDL for Impaired Reach (10<sup>6</sup> org/day)**

Updates Table 12, p. 30 in the original TMDL document.

<b>Segment #</b>	<b>Segment Name</b>	<b>WLA-WWTF</b>	<b>WLA-MS4</b>	<b>LA</b>	<b>MOS</b>	<b>TMDL</b>
1911	Upper San Antonio River	271,774	17,160,085	10,120,234	1,450,110	29,002,203

**Table VII-3 - Summary of *E. coli* TMDL for Impaired Reach (10<sup>6</sup> org/day)**

Updates Table 13, p. 30 in the original TMDL document.

<b>Segment #</b>	<b>Segment Name</b>	<b>WLA-WWTF</b>	<b>WLA-MS4</b>	<b>LA</b>	<b>MOS</b>	<b>TMDL</b>
1911	Upper San Antonio River	171,217	10,810,854	6,375,748	913,570	18,271,389