



# April 2023 Update to the Texas Water Quality Management Plan

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Prepared by  
Water Quality Division, Office of Water

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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 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 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 CWA 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) Section 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, 04/2022, 07/2022, 10/2022, and 01/2023.

The draft April 2023 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. TMDL Updates

The public comment period for the draft April WQMP update was from May 5, 2023, through June 6, 2023.

The “Projected Effluent Limit Update” section provides information compiled from February 1, 2023 through April 30, 2023 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 (WLA) 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
10422-001	2481	TX0020401	City of Ingleside San Patricio	2.0	10	166.80	3	50.04			4	
11020-002	1010	TX0087831	City of New Waverly Walker	0.3	10	25.02	3	7.51			4	
11792-002	1014	TX0070971	Harris County MUD 105 Harris	3.0	5	125.10	2	50.04			6	
13457-001	0826	TX0104957	Trinity River Authority of Texas Denton	4.9	5	204.33	1.4	57.21			6	Outfall 001 June-October
				4.9	5	204.33	1.6	65.39			6	Outfall 001 November-May
				11.6	5	483.72	2	193.49			6	Outfall 002 June-October
				11.6	7	677.21	3	290.23			6	Outfall 002 November-May
13637-001	0803	TX0075949	Texas Water Utilities LP Polk	0.02	10	1.67	3	0.50			4	
15335-001	1202	TX0136140	Fort Bend County Municipal Utility District No. 134E Fort Bend	1.5	10	125.10	2	25.02			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
15738-001	1808	TX0138835	Plum Creek Caldwell, LP Caldwell	3.08	5	128.44	2	51.37			4	
15843-001	1808	TX0139785	Aguilas Robles, LLC Comal	0.6	5	25.02	2	10.01			4	
15850-001	1244	TX0139866	Prairie Crossing Wastewater, LLC Williamson	4.5	5	187.65	2	75.06			4	
15883-001	0820	TX0140295	Collin County Municipal Utility District No. 5 Collin	0.6	7	35.03	2	10.01			6	
15993-001	1008	TX0141305	Quadvest, L.P. Montgomery	0.25	10	20.85	3	6.26			4	revised discharge route
15996-001	1302	TX0141001	Khawar and Sons, Inc. Austin	0.8	10	66.72	2	13.34			4	
16203-001	2430/1001	TX0143359	High Catch LLC Harris	0.18	10	15.01	3	4.50			4	
16205-001	0902	TX0143367	Roving Meadows Utilities, Inc. Harris	0.12	10	10.01	2	2.00			4	
16210-001	1428	TX0143405	Atlantis WKA Bastrop LLC Bastrop	0.3	5	12.51	2	5.00			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
16233-001	1008	TX0143618	MTR Mattern Ranch LLCGrimes	0.24	10	20.02	3	6.00			4	
16239-001	1202	TX0143685	Enclave Gassner Tract, LLC Waller	0.21	7	12.26	2	3.50			4	
16258-001	0202	TX0143812	Landra Partners LLC Grayson	0.055	10	4.59	3	1.38			4	
16259-001	1008	TX0143821	Audubon Management District Montgomery	4	10	333.60	3	100.08			4	
16261-001	0505	TX0143855	NTS Development LLC Harrison	0.02					20	3.34	2	
16262-001	1014	TX0143863	Quadvest, LP Waller	0.6	10	50.04	2	10.01			6	
16266-001	1003	TX0143871	Pine Quest Ltd. Liberty	0.4	10	33.36	3	10.01			4	
16267-001	1010	TX0143880	Texas Water Utilities, L.P. Montgomery	0.157	10	13.09					4	
16268-001	0821	TX0143898	Mustang Special Utility District Grayson	0.95	5	39.62	1.1	8.72			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
16269-001	0202	TX0143901	Sherman Lakes JV, LLC Grayson	0.1875	10	15.64	12	18.77			4	
16270-001	1010	TX0143910	Marian Trails Development Company LLC Montgomery	0.995	10	82.98	2	16.60			5	
16271-001	0814	TX0143928	FM 2258 Grandview Holdings LLC Johnson	0.06					20	10.01	2	
16272-001	0805	TX0143936	OurCalling, Inc. Ellis	0.09					20	15.01	2	
16273-001	0805	TX0143944	Clear Utilities, LLC Ellis	0.25	10	20.85	2	4.17			5	
16275-001	1302	TX0143961	LGI Homes-Texas, LLC Fort Bend	0.42	10	35.03	3	10.51			4	
16276-001	1233	TX0143979	The Peninsula RV Resort, LLC Stephens	0.015	10	1.25	3	0.38			4	
16280-001	2003	TX0144002	Municipal Operations LLC San Patricio	0.3	5	12.51	2	5.00			4	
16281-001	2114	TX0144011	Gram Vikas Partners, Inc. Medina	0.3	5	12.51	2	5.00			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
16283-001	1227	TX0144037	Clear Utilities, LLC Johnson	0.1	10	8.34	3	2.50			4	
16284-001	1102	TX0144045	Preserve at Friendswood LLC Harris	0.05	5	2.09	2	0.83			4	
16285-001	1004	TX0144053	Airport Road Development Company LLC Montgomery	0.3	10	25.02	3	7.51			6	
16286-001	1010	TX0144061	Prairie Estates at Conroe, LLC Montgomery	0.6	10	50.04	3	15.01			4	
16288-001	1010	TX0144088	El Dorado, WW LLC Montgomery	0.42	10	35.03	3	10.51			4	
16290-001	1244	TX0144096	Hwy 3349 Holdings LLC Williamson	0.96	10	80.06	3	24.02			4	
16291-001	1014	TX0144100	Katy 2855 Development LLC Harris	1.2	10	100.08	2	20.02			6	
16292-001	1003	TX0144118	Harris County MUD 514 Harris	0.8	7	46.70	2	13.34			6	
16293-001	1810	TX0144126	Paloma Wastewater LLC & MJD Endeavors LLC Caldwell	0.2	10	16.68	2	3.34			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
16294-001	1243	TX0144169	Mustang Creek Utilities, LLC + Mor-Maur Mustang, LLC Bell	0.928	5	38.70	2	15.48			4	
16297-001	1808	TX0144142	BL Holdings, LLC Caldwell	0.85	5	35.45	2	14.18			4	
16298-001	2104	TX0144151	Gateway Core Equity Ltd & Gateway MUD No. 1 Webb	0.33					10	27.52	4	
16302-001	1434	TX0144193	Wright Road 1327 LLC Travis	0.04	5	1.67	2	0.67			4	
16303-001	1428	TX0144207	Cedar Creek MH, LLC Bastrop	0.15	5	6.26	2	2.50			6	
16304-001	1011	TX0144215	105 Utility LLC Montgomery	0.3	10	25.02	3	7.51			6	
16305-001	0901	TX0144223	Baytown 99 Industrial LP Chambers	0.025	10	2.09	3	0.63			4	
16306-001	0840	TX0144231	LOV Plant, LLCooke	0.75	10	62.55	2	12.51			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 Pflugerville	Utility boundary	T/C	2040	Colorado River	1428	Travis & Williamson	2/28/2023		2022	79169
									2030	130809
									2035	172932
									2040	215055
City of Primera	City boundary	C	2023	Nueces-Rio LRGVDC	2202	Cameron	2/27/2023		2020	4758
									2030	5560
									2035	5966
									2040	6373
San Leon Municipal Utility District	Utility boundary	C	2050	Bays and Estuaries HGAC	2439	Galveston	2/22/2023		2022	6857
									2030	8352
									2040	10688
									2050	13677
City of Bartlett	Project service area	T/C	2060	Brazos River CTCOG	1213	Bell	3/23/2023		2020	1874
									2030	2091
									2040	2330
									2050	2575



<b>Planning Agency</b>	<b>Service Area</b>	<b>Needs</b>	<b>Needs Year</b>	<b>Basin Name / COG</b>	<b>Segment</b>	<b>County</b>	<b>WQMP Date</b>	<b>Comments</b>	<b>Year</b>	<b>Population</b>
City of Garrison	Project service area	T/C	2050	Neches River	0612	Nacogdoches	2/28/2023		2022	804
									2030	872
									2040	963
									2050	1063
City of Moody	City Boundary	T/C	2060	Brazos	1220	McLennan	3/28/2023		2020	1566
									2030	1690
									2040	1800
									2050	1911

## 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 CWA (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 Pflugerville	Utility boundary	T/C	12/13/2022
City of Primera	City boundary	C	3/24/2022
San Leon Municipal Utility District	Utility boundary	C	11/29/2022
City of Bartlett	Project service area	T/C	12/14/2022
City of Garrison	Project service area	T/C	12/13/2022
City of Moody	City boundary	T/C	12/16/2022

## **Total Maximum Daily Load Update**

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 CWA.

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 WLAs 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 WLAs 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 TMDLs 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 34 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.
- Increased flow to 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 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.

For AU 1014B\_01, the existing future growth (FG) allocations were insufficient to cover the increased flow to the AU for this update. To account for this, the total amount exceeded beyond the original FG allocation was added to the total TMDL allocation. This resulted in a change to the overall TMDL allocation for the one AU, which has been updated in Tables I-2 and I-3. The overall numbers for the other AU did not change and did not result in a change to the overall TMDL allocations.

**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
11792-002	001	TX0070971	1014A_01	HARRIS CO MUD 105	3.0	7.154	Increased flow
16291-001	001	TX0144100	1014B_01	KATY 2855 DEVELOPMENT LLC	1.2	2.862	New 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
1014A_01	Bear Creek	195.04	31.37	141.2	15.69	0	0	6.78
1014B_01	Buffalo Bayou	642.13	106.09	482.44	53.6	0	0	0.00

**Table I-3 - TMDL final calculations**

Updates Table 54, p. 118-119 in the original TMDL document.

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

AU	TMDL	WLA WWTF	WLA SW	LA TOTAL	MOS
1014B_01	642.13	106.09	482.44	53.60	0

## **Appendix II. Updates to Nine TMDLs for Bacteria in Clear Creek and Tributaries**

### **Segments 1101, 1101B, 1101D, 1102, 1102A, 1102B, 1102C, 1102D, and 1102E**

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

The report *Nine Total Maximum Daily Loads for Bacteria in Clear Creek and Tributaries: Segments 1101, 1101B, 1101D, 1102, 1102A, 1102B, 1102C, 1102D, and 1102E* was adopted by TCEQ on 09/10/08 and approved by EPA on 03/06/09. Upon EPA approval, the TMDLs became part of the state's WQMP.

The Texas WQMP has since been updated nine times prior to this update for this TMDL. The previous updates have revised the list of individual WLAs in the original TMDL document. TCEQ submitted two addenda to the original TMDL in the October 2012 and October 2018 WQMP updates. These addenda added five new AUs to the original TMDL project.

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 FG in one AU. This was originally presented in Tables 18 and 21 in the original TMDL document. The affected AU in this update is included here as Tables II-2 and II-3.

**Table II-1 - Changes to individual WLAs within the TMDL watersheds**

Updates Table 16, pp. 47 in the original TMDL document.

All loads expressed as MPN/day.

State Permit Number / EPA Permit Number	Outfall	AU	Permittee Name	Flow (MGD)	WLA – Fecal Coliform MPN/day	WLA – <i>E. coli</i> MPN/day	WLA – Enterococci MPN/day	TMDL Comments
16284-001 / TX0144045	001	1102D_01	PRESERVE AT FRIENDSWOOD LLC	0.05	3.79E+08	2.38E+08	NA	New permit

**Table II-2 - *E. coli* and Fecal Coliform TMDL Calculations for Freshwater Segments**

Updates Table 18, p. 50 in the original TMDL document.

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

Segment	Sampling Location	Stream Name	Indicator Bacteria	TMDL	WLA WWTF	WLA SW	LA	MOS	FG
1102D	17069	Turkey Creek	Fecal Coliform	8.14E+10	4.69E+10	6.47E+09	1.72E+09	4.07E+09	2.23E+10

**Table II-3 - TMDL Allocation Table**

Updates Table 21, p. 53 in the original TMDL document.

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

Segment	Stream Name	AU	Indicator Bacteria	TMDL	WLA WWTF	WLA SW	LA	MOS	FG
1102D	Turkey Creek	1102D_01	Fecal Coliform	8.14E+10	4.69E+10	6.47E+09	1.72E+09	4.07E+09	2.23E+10

## **Appendix III. Updates to Seven TMDLs for Indicator Bacteria in Lake Houston, East Fork San Jacinto River, West Fork San Jacinto River, and Crystal Creek Watersheds**

### **Segments 1002, 1003, 1004, and 1004D**

This appendix provides updates to TMDLs previously submitted through the state's WQMP for: Lake Houston, East Fork San Jacinto River, West Fork San Jacinto River, and Crystal Creek Watersheds.

The report *Seven Total Maximum Daily Loads for Indicator Bacteria in Lake Houston, East Fork San Jacinto River, West Fork San Jacinto River, and Crystal Creek Watersheds For Segments 1002, 1003, 1004, and 1004D* was adopted by TCEQ on 08/24/16 and approved by EPA on 10/07/16. Upon EPA approval, the TMDLs became part of the state's WQMP.

The Texas WQMP has since been updated 14 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 an addendum to the original TMDL in the October 2018 WQMP update. This addendum added one new AU to the original TMDL project.

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

- Add three new permits.

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 four AUs. This was originally presented in Table 17 in the original TMDL document. The four affected AUs in this update are included here as Table III-2.

For AU 1003\_01, the existing future growth (FG) allocations were insufficient to cover the increased flow to the AU for this update. To account for this, the total amount exceeded beyond the original FG allocation was added to the total TMDL allocation. This resulted in a change to the overall TMDL allocation for the one AU, which has been updated in Tables III-2 and III-3. The overall numbers for the other AUs did not change and did not result in a change to the overall TMDL allocations.



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

Updates Table 13, p. 54-55 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
16266-001	001	TX0143871	1003_01	PINE QUEST LTD.	0.4	0.9539	New permit
16292-001	001	TX0144118	1003_01	HARRIS COUNTY MUD 514	0.8	1.9078	New permit
16285-001	001	TX0144053	1004D_01	AIRPORT ROAD DEVELOPMENT COMPANY LLC	0.3	0.7154	New Permit

**Table III-2 - TMDL summary calculations for four AUs in the TMDL watersheds**

Updates Table 17, p. 59 in the original TMDL document.

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

AU	Segment Name	TMDL	MOS	WLA WWTF	WLA SW	LA AU	LA TRIB	LA RES	LA TOTAL	FG
1002_06	Lake Houston	6,197	106.57	106.06	288.17	1,535.70	3,106.90	958.70	5,601.30	94.90
1003_01	East Fork San Jacinto River	875.35	43.32	20.47	1.75	809.81	0.0	0.0	809.81	0.0
1004_01	West Fork San Jacinto River	2,779	88.77	102.79	196.81	1,294.21	44.86	958.7	2,297.77	92.86
1004D_01	Crystal Creek	137.8	6.89	10.97	18.79	100.92	0.0	0.0	100.92	0.23

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

Updates Table 18, p. 60 in the original TMDL document.

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

AU	TMDL	WLA WWTF	WLA SW	LA TOTAL	MOS
1003_01	875.35	20.47	1.75	809.81	43.32

## **Appendix IV. 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 41 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 IV-1):

- Add six new permits, and
- increase a discharge to 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 four AUs. This was originally presented in Table 18 in the original TMDL document. The four affected AUs in this update are included here as Table IV-2.

For AUs 1010\_02 and 1010\_04, the existing future growth (FG) allocations were insufficient to cover the increased flow to the AUs for this update. To account for this, the total amount exceeded beyond the original FG allocation was added to the total TMDL allocation. This resulted in a change to the overall TMDL allocation for both of the AUs, which have been updated in Tables IV-2 and IV-3. The overall numbers for the other AUs did not change and did not result in a change to the overall TMDL allocations.

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

Updates Table 16, p. 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
16233-001	001	TX0143618	1008_03	MTR MATTERN RANCH LLC	0.24	0.572	New permit
16259-001	001	TX0143821	1008_03	AUDUBON MANAGEMENT DISTRICT	4.0	9.539	New permit
11020-002	001	TX0087831	1010_02	CITY OF NEW WAVERLY	0.3	0.715	Increased discharge
16267-001	001	TX0143880	1010_02	TEXAS WATER UTILITIES, L.P.	0.157	0.374	New permit
16286-001	001	TX0144061	1010_04	PRAIRIE ESTATES AT CONROE, LLC	0.6	1.431	New permit
16288-001	001	TX0144088	1010_04	EL DORADO WW LLC	0.42	1.002	New permit
16270-001	001	TX0143910	1010_04	MARIAN TRAILS DEVELOPMENT COMPANY LLC	0.995	2.373	New permit

**Table IV-2 - TMDL summary calculations for four 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 WWTF	WLA SW	LA	MOS	FG
1008_03	11314	Spring Creek	1420	128.84	322	869	70.9	29.26
1008_04	11313	Spring Creek	1510	164.51	334	902	75.7	33.79
1010_02	14241	Caney Creek	247.62	4.52	30	200.8	12.3	0.00
1010_04	11334	Caney Creek	497.37	31.47	57.4	383.8	24.7	0.00

**Table IV-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 TOTAL	MOS
1010_02	247.62	4.52	30	200.8	12.3
1010_04	497.37	31.47	57.4	383.8	24.7

In addition, Table IV-4 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*). Two of the permits discussed earlier in this update also affect one AU in this addendum.

Table IV-5 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 (1010C\_01) was included as an upstream loading to 1010\_04 in the original TMDL. Two of the permits (16288-001/TX0144088 and 16270-001/ TX0143910) affect the loading of 1010C\_01 as well as the original TMDL AU 1010\_04.

For AUs 1010C\_01, the existing future growth (FG) allocations were insufficient to cover the increased flow to the AU for this update. To account for this, the total amount exceeded beyond the original FG allocation was added to the total TMDL allocation. This resulted in a change to the overall TMDL allocation for the one AU, which has been updated in Tables IV-5 and IV-6. The overall numbers for the other AUs did not change and did not result in a change to the overall TMDL allocations.

**Table IV-4 - 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
16288-011	001	TX0144088	1010C_01	EL DORADO WW LLC	0.42	1.002	New permit
16270-001	001	TX0143910	1010C_01	MARIAN TRAILS DEVELOPMENT COMPANY LLC	0.995	2.373	New permit

**Table IV-5 - TMDL summary calculations for one AU in the Spring Branch 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 wwtf	WLA sw	LA	FG	MOS
Spring Branch	1010C_01	137.726	5.807	4.682	120.517	0.000	6.72

**Table IV-6 - TMDL final calculations**

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

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

Water Body	AU	TMDL	WLA <sub>wwtf</sub>	WLA <sub>sw</sub>	LA TOTAL	MOS
Spring Branch	1010C_01	137.726	5.807	4.682	120.517	6.72

Finally, Table IV-7 below provides an update to Table VII-8 found in the April 2022 addendum to this TMDL project (*Addendum Four to Fifteen Total Maximum Daily Loads for Indicator Bacteria in Watersheds Upstream of Lake Houston: One Total Maximum Daily Load for Indicator Bacteria Caney Creek For AU 1010\_03*). Two of the permits discussed earlier in this update also affects one AU in this addendum.

Table IV-8 below provides updates to Table VII-9 found in the April 2022 addendum to this TMDL project. The addendum added one AU that was not included in the original TMDL. The AU affected here (1010\_03) was included as an upstream loading to 1010\_02 in the original TMDL. Two of the permits (11020-002/TX0087831 and 16267-001/TX0143880) affect the loading of 1010\_03 as well as the original TMDL AU 1010\_02.

In Table VII-10 of the April 2022 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 VII-10 of the TMDL addendum remains the same.

**Table IV-7 - Changes to individual WLAs in the Caney Creek watershed**

Updates Table VII-8, p. 20-21 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
11020-002	001	TX0087831	1010_03	CITY OF NEW WAVERLY	0.3	0.715	Increased discharge
16267-001	001	TX0143880	1010_03	TEXAS WATER UTILITIES, L.P.	0.157	0.374	New permit

**Table IV-8 - TMDL summary calculations for one AU in the Caney Creek watershed**

Updates Table VII-9, p. 22 in the TMDL addendum document.

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

Water Body	AU	TMDL	MOS	WLA WWTF	WLA SW	LA	FG
Caney Creek	1010_03	237.441	11.872	7.85	12.977	188.219	16.53