



July 2023 Update to the Texas Water Quality Management Plan

Prepared by
Water Quality Division, Office of Water

TCEQ SFR-121/2023-04
September 2023

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 federal Clean Water Act, as amended. The WQMP is an important part of the State’s program for accomplishing its clean water goals.¹

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 updates², 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.

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

² 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, 01/2023, and 04/2023.

The July 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 July WQMP update was from August 4, 2023 through September 5, 2023.

The “Projected Effluent Limit Update” section provides information compiled from May 1, 2023 through July 31, 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 (WLAs) 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:

- BOD₅–5-Day Biochemical Oxygen Demand
- CBOD₅–5-Day Carbonaceous Biochemical Oxygen Demand
- DO–Dissolved Oxygen
- lbs/day–Pounds per Day
- MGD–Million Gallons per Day
- mg/L–Milligrams per Liter
- NH₃-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 ₅ (mg/L)	CBOD ₅ (lbs/day)	NH ₃ -N (mg/L)	NH ₃ -N (lbs/day)	BOD ₅ (mg/L)	BOD ₅ (lbs/day)	DO (mg/L)	Months/ Comments
10005-001	2432	TX0024554	City of Alvin Brazoria	7.5	7	437.85	2	125.10			4	
10364-001	0703	TX0047589	City of Port Arthur Jefferson	9.2					20	1534.56	3	Outfall 001
				9.2	10	767.28	3	230.18			6	Outfall 002
10412-002	0606	TX0105066	City of Lindale Smith	1.5	10	125.10	2	25.02			6	
10616-002	1008	TX0117595	City of Tomball Harris	4.5	10	375.30	3	112.59			4	
10802-001	2302	TX0068764	City of Rio Grande City Starr	1.94					20	323.59	2	
10887-003	0507	TX0144517	City of Josephine Collin	0.75	10	62.55	3	18.77			4	
11444-001	1009	TX0046736	Harris County Water Control and Improvement District No. 99 Harris	0.2875	10	23.98	3	7.19			4	

State Permit Number	Segment Number	EPA ID Number	Permittee Name and County	Flow (MGD)	CBOD ₅ (mg/L)	CBOD ₅ (lbs/day)	NH ₃ -N (mg/L)	NH ₃ -N (lbs/day)	BOD ₅ (mg/L)	BOD ₅ (lbs/day)	DO (mg/L)	Months/Comments
13866-001	1244	TX0118265	SWWC Utilities Inc. Williamson	2.0	10	166.80	2	33.36			6	
14193-001	1009	TX0122963	Cedar Creek Forest MHC, LLC Harris	0.045	10	3.75	3	1.13			4	
15498-001	2434	TX0137243	Blue Water Resort, Inc. Brazoria	0.03	10	2.50	3	0.75			4	
15618-001	0229	TX0138037	Love's Travel Stops & Country Stores, Inc. Potter	0.0225	10	1.88	2	0.38			5	
16157-001	0826	TX0142867	WC 640 STPO LLC Denton	0.6	7	35.03	2	10.01			6	Increased discharge flow
16192-001	1903	TX0143251	Forest Glen Utility Company Medina	0.23	5	9.59	1	1.92			6	
16257-001	1248	TX0143804	New Horizons Utility, LLC and OptiN Holdings 1 LLC Williamson	1.34	5	55.88	2	22.35			6	
16274-001	0818	TX0143952	Moore Farm Water Control and Improvement District No. 1 Kaufman	1.6	5	66.72	1.6	21.35			6	

State Permit Number	Segment Number	EPA ID Number	Permittee Name and County	Flow (MGD)	CBOD ₅ (mg/L)	CBOD ₅ (lbs/day)	NH ₃ -N (mg/L)	NH ₃ -N (lbs/day)	BOD ₅ (mg/L)	BOD ₅ (lbs/day)	DO (mg/L)	Months/Comments
16277-001	2422	TX0143987	PTX Holdings, LLC Chambers	0.245	10	20.43	3	6.13			5	
16296-001	2307	TX0144134	Lower Valley Water District El Paso	0.9	5	37.53	1	7.51			6	
16308-001	1202	TX0144240	Fort Bend County Municipal Utility District No. 256 Fort Bend	0.495	10	41.28	3	12.38			4	
16309-001	1102	TX0144258	Cullen RV Resort LLC Brazoria	0.012	5	0.50	2	0.20			4	
16310-001	1243	TX0143863	South Central Water Company Bell	0.7	7	40.87	2	11.68			4	
16311-001	1256	TX0144274	CLDVM, LLC Hill	0.02					20	3.34	2	
16312-001	0818	TX0144282	College Mound Special Utility District & Post Oak MHC LLC Kaufman	0.25	10	20.85	3	6.26			4	

State Permit Number	Segment Number	EPA ID Number	Permittee Name and County	Flow (MGD)	CBOD ₅ (mg/L)	CBOD ₅ (lbs/day)	NH ₃ -N (mg/L)	NH ₃ -N (lbs/day)	BOD ₅ (mg/L)	BOD ₅ (lbs/day)	DO (mg/L)	Months/Comments
16313-001	1110	TX0144291	Fort Bend County Municipal Utility District No. 183 Fort Bend	0.45	10	37.53	2	7.51			4	
16316-001	0507	TX0144312	Clear Utilities LLC Hunt	0.1875	10	15.64	2	3.13			4	
16318-001	1010	TX0144321	Undine Environmental Texas LLC Montgomery	0.24	10	20.02	2	4.00			4	
16319-001	1002	TX0144339	Liberty County Utilities, LLC Liberty	0.975	7	56.92	2	16.26			4	
16322-001	0701	TX0144401	T & W Water Service Company Jefferson	0.12	10	10.01	2	2.00			6	
16323-001	0831	TX0144363	City of Hudson Oaks Parker	1.19	5	49.62	2	19.85			6	
16324-001	1008	TX0144371	Magnolia M3 Ranch, LP Montgomery	1.65	10	137.61	3	41.28			5	
16327-001	0803	TX0144380	19 Wood Farm QOZB LP Walker	0.05	10	4.17	3	1.25			4	
16328-001	1434	TX0144398	Corix Utilities Texas Inc. Bastrop	0.63	5	26.27	2	10.51			4	

State Permit Number	Segment Number	EPA ID Number	Permittee Name and County	Flow (MGD)	CBOD ₅ (mg/L)	CBOD ₅ (lbs/day)	NH ₃ -N (mg/L)	NH ₃ -N (lbs/day)	BOD ₅ (mg/L)	BOD ₅ (lbs/day)	DO (mg/L)	Months/Comments
16331-001	1001	TX0144428	Lennar Homes of Texas Land and Construction Ltd. Harris	0.39	10	32.53	3	9.76			4	
16336-001	0805	TX0144452	Jireten, LLC Ellis	0.162	5	6.76	1.6	2.16			6	
16339-001	1014	TX0144487	Freeland Houston Asli X LLC Waller	0.84	10	70.06	2	14.01			6	
16350-001	1808	TX0144584	Aqua Texas, INC Hays	0.9	5	37.53	2	15.01			4	

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 Magnolia	Project service area	T	2030	San Jacinto	1008	Montgomery	5/9/2023		2022	2200
				H-GAC					2030	22000
									2040	42500
									2050	60000
Northgate Crossing Mud No. 2	Project service area	T/C	2023	San Jacinto	1008	Harris	6/27/2023		2023	8826
				H-GAC					2030	8,826
									2040	10,160
									2050	10,160

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 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 Magnolia	Project service area	T	12/19/2022
Northgate Crossing Mud No. 2	Project service area	T/C	1/26/2023

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 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 35 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:

- Add two new permits (presented in Table I-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 53 in the original TMDL document. The affected AU in this update is included here as Table I-2.

For AU 1014B_01, the existing 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.

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
16339-001	001	TX0144487	1014B_01	FREELAND HOUSTON ASLI X LLC	0.84	2.003	New permit
16262-001	001	TX0143863	1014B_01	QUADVEST, LP	0.6	1.431	New permit

Table I-2 - TMDL summary calculations for one AU 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	645.57	109.53	482.44	53.60	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	645.57	109.53	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 10 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.

For AU 1102A_01, the existing FG allocation was 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 AU, which has been updated in Tables II-2 and II-3.

Table II-1 - Changes to individual WLAs within the TMDL watershed

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
16309-001/ TX0144258	001	1102A_01	CULLEN RV RESORT LLC	0.012	9.08E+07	5.72E+07	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
1102A	16477	Cowart Creek	<i>E. coli</i>	4.91E+10	1.03E+09	2.28E+10	2.28E+10	2.43E+09	0

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
1102A	Cowart Creek	1102A_02	<i>E. coli</i>	4.91E+10	1.03E+09	2.28E+10	2.28E+10	2.43E+09	0

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 42 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):

- Add three new permits
- Increase the discharge to three existing permits
- Remove one cancelled permit and one expired 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 10 AUs. This was originally presented in Table 18 in the original TMDL document. The 10 affected AUs in this update are included here as Table III-2.

For AUs 1009_02 and 1010_02, the existing 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. In addition, for AU 1008_02, there was a decrease in flow related to the removal of a cancelled permit (14901-001/TX0086053) in a stream with no remaining FG, however the removed flow will not be allocated back into FG as the original FG has been allocated for in previous WQMP updates. These changes in flow resulted in a change to the overall TMDL allocation for all three AUs, which have 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 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
14901-001	001	TX0086053	1008_02	TERRA VERDE UTILITY CO	N/A	N/A	Cancelled permit
16324-001	001	TX0144371	1008_03	MAGNOLIA M3 RANCH, LP	1.65	3.935	New permit
10616-002	001	TX0117595	1008H_01	CITY OF TOMBALL	4.5	10.732	Increased discharge
14193-001	001	TX0122963	1009_03	KENNARD TOM FOLEY	0.045	0.107	Increased discharge
11444-001	001	TX0046736	1009_04	HARRIS COUNTY WCID #99	0.2875	0.686	Increased discharge
12600-001	001	TX0091171	1009C_01	ELITE COMPUTER CONSULTANTS, LP	N/A	N/A	Expired permit
16318-001	001	TX0144321	1010_02	UNDINE ENVIRONMENTAL TEXAS LLC	0.24	0.572	New permit
16304-001	001	TX0144215	1011_02	105 UTILITY LLC	0.3	0.715	New permit

Table III-2 - TMDL summary calculations for 10 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_02	11314	Spring Creek	298.55	17.75	71.9	194.5	14.4	0.00
1008_03	11313	Spring Creek	1420	139.91	322	869	70.9	18.19
1008_04	11312	Spring Creek	1510	175.58	334	902	75.7	22.72
1008H_01	11185	Willow Creek	166	25.96	51.1	67.8	8.28	12.86
1009_02	11331	Cypress Creek	615.07	118.27	196	270	30.8	0.00
1009_03	11328	Cypress Creek	1340	202.04	415	574	67.0	81.96
1009_04	11324	Cypress Creek	1550	241.37	469	648	77.4	114.23
1009C_01	17496	Faulkey Gully	35.3	16.79	9.44	2.98	1.76	4.33
1010_02	14241	Caney Creek	248.19	5.09	30	200.8	12.3	0.00
1011_02	17746	Peach Creek	422	17.05	34.5	348.5	21.1	0.85

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 _{wwTF}	WLA _{sw}	LA _{TOTAL}	MOS
1008_02	298.55	17.75	71.9	194.5	14.4
1009_02	615.07	118.27	196	270	30.8
1010_02	248.19	5.09	30	200.8	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 (16304-001/TX0144215) affects the loading of 1011_01 as well as the original TMDL AU 1011_02.

For AU 1011_01, the existing 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-5 and III-6.

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
16304-001	001	TX0144215	1011_01	105 UTILITY LLC	0.3	0.715	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	FG
1011_01	Peach Creek	224.70	10.7	12.85	3.05	198.1	0	198.1	0.00

Table III-6 – TMDL addendum final calculations

Updates Table 13, p. 27 in the TMDL addendum document.

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

AU	TMDL	WLA WWTF	WLA SW	LA _{TOTAL}	MOS
1011_01	224.70	12.85	3.05	198.1	10.7

Finally, Table III-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 in Caney Creek For AU 1010_03*). One of the permits discussed earlier in this update also affects one AU in this addendum.

Table III-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. One of the permits (16318-001/ TX0144321) affects 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 III-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
16318-001	001	TX0144321	1010_03	UNDINE ENVIRONMENTAL TEXAS LLC	0.24	0.572	New permit

Table III-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	8.42	12.977	188.219	15.95

Appendix IV. Updates to Two TMDLs for Indicator Bacteria in the Tidal Segments of the Mission and Aransas Rivers

Segments 2001 and 2003

This appendix provides updates to TMDLs previously submitted through the state's WQMP for: Mission and Aransas Rivers.

The report *Two Total Maximum Daily Loads for Indicator Bacteria in the Tidal Segments of the Mission and Aransas Rivers for Segments 2001 and 2003* was adopted by TCEQ on 05/25/16 and approved by EPA on 08/09/16. Upon EPA approval, the TMDLs became part of the state's WQMP.

The Texas WQMP has since been updated three 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 2017 WQMP update. This addendum added two 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 IV-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 Table 20 in the original TMDL document. The affected AU in this update is included here as Table IV-2.

In Table 21 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 21 of the original TMDL remains the same.

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

Updates Table 14, p. 35 in the original TMDL document.

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

State Permit Number	Outfall	EPA Permit Number	AU	Permittee Name	Flow (MGD)	Enterococci WLA	<i>E. coli</i> WLA	TMDL Comments
16280-001	001	TX0144002	2003_01	MUNICIPAL OPERATIONS LLC	0.3	0.378	1.359	New permit

Table IV-2 - TMDL summary calculations for one AU in the TMDL watershed

Updates Table 20, p. 42 in the original TMDL document.

All loads expressed as billion MPN/day Enterococci.

AU	Segment Name	TMDL	MOS	WLA WWTF	WLA SW	LA	FG
2003_01	Aransas River Tidal	150.321	7.516	9.744	0.05	132.197	0.814

Appendix V. Update to Three TMDLs 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 five 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:

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

The addition of this new facility changes the overall TMDL equations for chloride, sulfate, and total dissolved solids (TDS), given in Tables 11, 12, and 13, respectively, in the original TMDL document. Please note that the total wasteload allocations (WLAs) for sulfate and TDS were presented erroneously in the original TMDL document (lbs/day were given instead of lbs/year). The total TMDL equations have been updated in Table V-2.

Table V-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
05430-000	001	TX0144541	TESLA, INC.	0.2565	Chloride Limit	3,050	New permit
					Sulfate Limit	1,017	
					Total Dissolved Solids Limit	8,134	

Table V-2 – TMDL final calculations

Updates Tables 11-13, p. 32-33 in the original TMDL document.

All loads are expressed in lb/year.

	TMDL	WLA	LA	MOS
Chloride	4.61E+07	4.27E+06	3.96E+07	2.31E+06
Sulfate	2.17E+07	1.42E+06	1.85E+07	1.09E+06
TDS	9.87E+07	1.14E+07	8.42E+07	4.94E+06