



October 2024 Update to the Texas Water Quality Management Plan

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

WQMP updates are available on the TCEQ webpage:
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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.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 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 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, and 07/2020, 10/2020, 01/2021, 04/2021, 07/2021, 10/2021, 01/2022, 04/2022, 07/2022, 10/2022, 01/2023, 04/2023, 7/2023, 10/2023, 01/2024, 04/2024, and 07/2024.

The October 2024 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 October WQMP update was from November 8, 2024 through December 10, 2024.

The “Projected Effluent Limit Update” section provides information compiled from August 1, 2024 through October 31, 2024 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) | CBOD₅ (mg/L) | CBOD₅ (lbs/day) | NH₃-N (mg/L) | NH₃-N (lbs/day) | BOD₅ (mg/L) | BOD₅ (lbs/day) | DO (mg/L) | Months/ Comments |
|----------------------------|-----------------------|----------------------|---|-------------------|--------------------------------|-----------------------------------|--------------------------------|-----------------------------------|-------------------------------|----------------------------------|------------------|-------------------------|
| 11287-003 | 0826 | TX0123862 | Town of Ponder Denton | 0.96 | 10 | 80.06 | 2 | 16.01 | | | 6 | |
| 14056-001 | 0803 | TX0117331 | Texas Water Utilities, L.P. San Jacinto | 0.2 | 5 | 8.34 | 1.6 | 2.67 | | | 6 | |
| 16070-001 | 0826 | TX0142034 | TCCI Land Development, Inc. Denton | 2.0 | 5 | 83.40 | 2 | 33.36 | | | 6 | |
| 16390-001 | 1103 | TX0144959 | Megatel Homes III, LLC and Tres Rios Properties, LLC Galveston | 1.33 | 5 | 55.46 | 2 | 22.18 | | | 5 | |
| 16420-001 | 0606 | TX0145203 | Free State Sewer Service and Water Supply Corporation Van Zandt | 0.085 | 5 | 3.54 | 2 | 1.42 | | | 4 | |
| 16528-001 | 1242 | TX0145947 | Deer Creek Eddy, LP Bell | 0.99 | 7 | 57.80 | 2 | 16.51 | | | 6 | |
| 16565-001 | 1213 | TX0146242 | High Ten Jarrell 115, 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) | CBOD₅ (mg/L) | CBOD₅ (lbs/day) | NH₃-N (mg/L) | NH₃-N (lbs/day) | BOD₅ (mg/L) | BOD₅ (lbs/day) | DO (mg/L) | Months/ Comments |
|----------------------------|-----------------------|----------------------|--|-------------------|--------------------------------|-----------------------------------|--------------------------------|-----------------------------------|-------------------------------|----------------------------------|------------------|-------------------------|
| 16573-001 | 1104 | TX0146307 | Brazoria Field Farm and Livestock, LLC Brazoria | 0.12 | 10 | 10.01 | 3 | 3.00 | | | 4 | |
| 16601-001 | 1244 | TX0146498 | GRBK Edgewood LLC and Rummel & Rohde Farms LTD Williamson | 0.66 | 10 | 55.04 | 3 | 16.51 | | | 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 Fort Worth | Utility boundary | T | 2060 | Trinity | 0841 | Tarrant | 9/5/2024 | | 2023 | 1,394,591 |
| | | | | NCTCOG | | | | | 2030 | 1,694,815 |
| | | | | | | | | | 2040 | 2,017,530 |
| | | | | | | | | | 2050 | 2,262,135 |
| City of La Marque | City Boundary | C | 2045 | San Jacinto-Brazos | 2424 | Galveston | 10/23/2024 | | 2023 | 19,664 |
| | | | | H-GAC | | | | | 2030 | 23,695 |
| | | | | | | | | | 2040 | 30,929 |
| | | | | | | | | | 2050 | 33,077 |

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 Fort Worth | Utility boundary | T | 1/23/2024 |
| City of La Marque | City Boundary | C | 1/29/2024 |

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 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 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 April 8, 2009 and approved by EPA on June 11, 2009. Upon EPA approval, the TMDLs became part of the state's WQMP.

The Texas WQMP has since been updated 39 times prior to this update for this TMDL. The previous updates have revised the list of individual 1014H_02 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 change to the TMDL (presented in Table I-1):

- Add one new 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 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 1014H_02, 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 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 most probable number (MPN)/day *Escherichia coli* (*E. coli*).

| State Permit Number | Outfall | EPA Permit Number | AU | Permittee Name | Flow (MGD) | WLA | TMDL Comments |
|---------------------|---------|-------------------|----------|---|------------|-------|---------------|
| 16530-001 | 001 | TX0145955 | 1014H_02 | HARRIS-WALLER COUNTY MUNICIPAL UTILITY DISTRICT NO. 8 | 0.40 | 0.954 | 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 | TMDL | WLA WWTF | WLA SW | LA | MOS | Upstream Load | FG |
|----------|--------|----------|--------|-------|-----|---------------|------|
| 1014H_02 | 190.98 | 51.06 | 125.93 | 13.99 | 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 |
|----------|--------|----------|--------|----------|-----|
| 1014H_02 | 190.98 | 51.06 | 125.93 | 13.99 | 0 |

Appendix II. Updates to Two TMDLs for Indicator Bacteria in Chocolate Bayou

AUs 1107_01 and 1108_01

This appendix provides the first update to the original TMDLs through the state’s WQMP for Chocolate Bayou.

The report, *Two Total Maximum Daily Loads for Indicator Bacteria in Chocolate Bayou for Assessment Units 1107_01 and 1108_01*, was adopted by TCEQ on May 22, 2024 and approved by EPA on July 26, 2024. Upon EPA approval, the TMDLs became part of the state’s WQMP.

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

- Add two new permits.
- Remove one expired permit.
- Modify an existing permit with an increased discharge.

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 two AUs. This was originally presented in Table 22 in the original TMDL document. The two affected AUs in this update are included here as Table II-2.

In Table 23 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 for the two AUs did not change, and this results in no changes to the overall TMDL allocations.

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

Updates Table 16, p. 41-42 in the original TMDL document.

The WLA is expressed in billion cfu/day.

| AU | State Permit Number | Outfall | Permittee Name | Flow (MGD) | WLA (billion cfu/day <i>E. coli</i>) | WLA (billion cfu/day Enterococci) | TMDL Comments |
|---------|---------------------|---------|-----------------------------------|------------|---------------------------------------|-----------------------------------|---------------------|
| 1108_01 | 15861-001 | 1 | BRAZORIA-FORT BEND COUNTIES MUD 3 | 0.5 | 0.662 | 2.385 | New permit |
| 1108_01 | 16235-001 | 1 | RODEO PALMS SOUTH WWTF | 0.2 | 0.265 | 0.954 | New permit |
| 1108_01 | 13872-001 | 1 | CITY OF MANVEL WWTF | 4.0 | 5.300 | 19.078 | Increased discharge |

| AU | State Permit Number | Outfall | Permittee Name | Flow (MGD) | WLA (billion cfu/day <i>E. coli</i>) | WLA (billion cfu/day Enterococci) | TMDL Comments |
|---------|---------------------|---------|--------------------|------------|---------------------------------------|-----------------------------------|----------------|
| 1108_01 | 15093-001 | 1 | LACOVIA LAKES WWTF | N/A | N/A | N/A | Expired permit |

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

Updates Table 22, p. 48 in the original TMDL document.

All loads expressed as billion cfu/day *E. coli* for 1108_01 and billion cfu/day Enterococci for 1107_01.

| AU | Criterion (cfu/100mL) | TMDL | WLA WWTF | WLA SW | LA | FG | MOS |
|---------|-----------------------|----------|----------|---------|---------|---------|--------|
| 1107_01 | 35 | 907.154 | 26.006 | 159.286 | 591.276 | 85.228 | 45.358 |
| 1108_01 | 126 | 1,714.08 | 74.234 | 293.261 | 954.32 | 306.563 | 85.704 |

Appendix III. Updates to One TMDL for Indicator Bacteria in Cotton Bayou Tidal

AU 0801C_01

This appendix provides the first update to the original TMDL through the state’s WQMP for Cotton Bayou Tidal.

The report, *One Total Maximum Daily Load for Indicator Bacteria in Cotton Bayou Tidal for Assessment Unit 0801C_01*, was adopted by TCEQ on May 22, 2024 and approved by EPA on July 26, 2024. Upon EPA approval, the TMDL became part of the state’s WQMP.

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

- Add one new 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 one AU. This was originally presented in Table 17 in the original TMDL document. The affected AU in this update is included here as Table III-2.

In Table 18 of the original TMDL, the WLA for permitted facilities is the sum of the individual WLAs and the allowance for FG within the TMDL AU. The overall number for the AU did not change, and this results in no changes to the overall TMDL allocations.

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

Updates Table 11, p. 35 in the original TMDL document.

The WLA is expressed in billion cfu/day Enterococci.

| AU | State Permit Number | Outfall | Permittee Name | Flow (MGD) | WLA | TMDL Comments |
|----------|---------------------|---------|-------------------|------------|-------|---------------|
| 0801E_01 | 16277-001 | 1 | PTX HOLDINGS, LLC | 0.245 | 0.325 | New permit |

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

Updates Table 17, p. 41 in the original TMDL document.

All loads expressed as billion cfu/day Enterococci.

| AU | TMDL | WLA WWTF | WLA sw | LA | FG | MOS |
|----------|--------|----------|--------|--------|-------|-------|
| 0801C_01 | 89.169 | 6.879 | 24.389 | 45.068 | 8.375 | 4.458 |

Appendix IV. Updates to Eight Total Maximum Daily Loads for Indicator Bacteria in Dickinson Bayou and Three Tidal Tributaries

Segments 1103, 1103A, 1103B, 1103C and 1104

This appendix provides updates to TMDLs previously submitted through the state’s WQMP for: Dickinson Bayou and Tributaries.

The report, *Eight Total Maximum Daily Loads for Indicator Bacteria in Dickinson Bayou and Three Tidal Tributaries For Segments 1103, 1103A, 1103B, 1103C and 1104*, was adopted by TCEQ on February 8, 2012 and approved by EPA on June 6, 2012. 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 July 2016 WQMP update. This addendum added three new AUs to the original TMDL project. A second addendum was submitted and added to the original TMDL in the April 2022 WQMP update. This second addendum added two new AUs to the original TMDL project.

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

- Add one new 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 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.

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

Updates Table 18, p. 39 in the original TMDL document.

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

| State Permit Number | Outfall | EPA Permit Number | AU | Permittee Name | Flow (MGD) | Indicator Bacteria | WLA | TMDL Comments |
|---------------------|---------|-------------------|---------|--|------------|--------------------|----------|---------------|
| 16573-001 | 001 | TX0146307 | 1104_02 | BRAZORIA FIELD FARM AND LIVESTOCK, LLC | 0.12 | <i>E. coli</i> | 2.86E+08 | New permit |

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

Updates Table 20, p. 44 in the original TMDL document.

All loads expressed as MPN/day.

| Stream Name | AU | Indicator Bacteria | TMDL | WLA_{WWTF} | WLA_{SW} | LA | MOS | FG |
|-----------------------------|-----------|---------------------------|-------------|---------------------------|-------------------------|-----------|------------|-----------|
| Dickinson Bayou Above Tidal | 1104_02 | <i>E. coli</i> | 1.04E+10 | 4.61E+08 | 1.50E+09 | 3.87E+09 | 4.11E+08 | 4.16E+09 |

Appendix V. 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 August 24, 2016 and approved by EPA on October 7, 2016. Upon EPA approval, the TMDLs became part of the state's WQMP.

The Texas WQMP has since been updated 17 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 has submitted several addenda related to the original TMDL in the October 2018 WQMP update, the January 2023 WQMP update, and, most recently, the April 2024 WQMP update. 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 V-1):

- Add two 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 three AUs. This was originally presented in Table 17 in the original TMDL document. The affected AU in this update is included here as Table V-2.

Table V-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 |
|---------------------|---------|-------------------|---------|-------------------------|------------|--------|---------------|
| 16512-001 | 001 | TX0145840 | 1015_02 | SHEA HOMES HOUSTON, LLC | 0.3 | 0.7154 | New permit |
| 16534-001 | 001 | TX0145998 | 1004_01 | TML-GP TOWNSEN RD LLC | 0.35 | 0.8347 | New permit |

Table V-2 - TMDL summary calculations for three 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 | 108.93 | 288.17 | 1,535.70 | 3,106.90 | 958.7 | 5,601.30 | 92.03 |
| 1004_01 | West Fork San Jacinto River | 2,779 | 88.77 | 105.65 | 196.81 | 1,294.21 | 44.86 | 958.7 | 2,297.77 | 90.00 |
| 1004_02 | West Fork San Jacinto River | 1,141 | 9.12 | 49.04 | 4.04 | 75.26 | 0 | 958.7 | 1,033.96 | 44.84 |

Appendix VI. 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 April 6, 2011 and approved by EPA on June 29, 2011. Upon EPA approval, the TMDLs became part of the state's WQMP.

The Texas WQMP has since been updated 46 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 VI-1):

- Add two new permits.
- Remove a 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 FG in three AUs. This was originally presented in Table 18 in the original TMDL document. The three affected AUs in this update are included here as Table VI-2.

For AUs 1010_02, and 1010_04, 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 TMDL allocation for each AU. These changes in flow resulted in a change to the overall TMDL allocation for both AUs, which have been updated in Tables VI-2 and VI-3. The overall numbers for the other AUs did not change and did not result in a change to the overall TMDL allocations.

Table VI-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 |
|---------------------|---------|-------------------|---------|----------------------------|------------|-------|------------------|
| 15765-001 | 001 | TX0139017 | 1009_04 | MCNABB UTILITIES, LLC | NA | NA | Cancelled permit |
| 16533-001 | 001 | TX0145980 | 1010_02 | SOUTH CENTRAL WATER SUPPLY | 0.7 | 1.669 | New permit |
| 16541-001 | 001 | TX0146048 | 1010_02 | SOUTH CENTRAL WATER SUPPLY | 0.8 | 1.908 | New permit |

Table VI-2 - TMDL summary calculations for three 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 |
|---------|-------------------|---------------|--------|----------|--------|-------|------|--------|
| 1009_04 | 11324 | Cypress Creek | 1550 | 239.61 | 469 | 648 | 77.4 | 115.99 |
| 1010_02 | 14241 | Caney Creek | 252.17 | 9.07 | 30 | 200.8 | 12.3 | 0.00 |
| 1010_04 | 11334 | Caney Creek | 501.92 | 36.02 | 57.4 | 383.8 | 24.7 | 0.00 |

Table VI-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 |
|---------|--------|----------|--------|----------|------|
| 1010_02 | 252.17 | 9.07 | 30 | 200.8 | 12.3 |
| 1010_04 | 501.92 | 36.02 | 57.4 | 383.8 | 24.7 |

In addition, Table VI-4 below provides an update to Table 11 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: 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 VI-5 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 new permits included in this update (16533-001/TX0145980 and 16541-001/TX0146048) affect the loading of 1010_03 as well as the original TMDL AU 1010_02.

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 VII-9 in the addendum TMDL document. The affected AU in this update is included here as Table VI-5.

Table VI-4 - 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 |
|---------------------|---------|-------------------|---------|----------------------------|------------|-------|---------------|
| 16533-001 | 001 | TX0145980 | 1010_02 | SOUTH CENTRAL WATER SUPPLY | 0.7 | 1.669 | New permit |
| 16541-001 | 001 | TX0146048 | 1010_02 | SOUTH CENTRAL WATER SUPPLY | 0.8 | 1.908 | New permit |

Table VI-5 - 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 | 12.40 | 12.977 | 188.219 | 11.97 |