

June 10, 2020
FINAL

April 2020 Update to the Texas Water Quality Management Plan



April 2020 Update to the Texas Water Quality Management Plan

Prepared by the
Office of Water
Water Quality Division

Compiled and distributed by the
Water Quality Assessment Section
Water Quality Division
Texas Commission on Environmental Quality
P.O. Box 13087, MC-150
Austin, Texas 78711-3087

June 2020

WQMP updates are also available on the TCEQ web site at:
< http://www.tceq.texas.gov/permitting/wqmp/WQmanagement_updates.html >

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



Jon Niermann, *Chairman*
Bobby Janecka, *Commissioner*
Emily Lindley, *Commissioner*
Toby Baker, *Executive Director*

Authorization for use or reproduction of any original material contained in this publication—that is, not obtained from other sources—is freely granted. The commission would appreciate acknowledgement.

Table of Contents

Introduction 1
Projected Effluent Limit Updates 3
Planning Information Summary 6
Designated Management Agencies 10
Total Maximum Daily Load Updates 11

Tables

Table 1. Projected Effluent Limit Updates 4
Table 2. Service Population Updates 8
Table 3. Designated Management Agencies 10

Appendices

Appendix I. 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..... 12
Appendix II. Four Total Maximum Daily Loads for Indicator Bacteria in Halls Bayou and
Tributaries For Segment Numbers 1006D, 1006I, and 1006J 14
Appendix III. 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 16
Appendix IV. 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 20

Introduction

The Texas Water Quality Management Plan (WQMP) is the product of a wastewater treatment facility planning process developed and updated in accordance with provisions of Sections 205(j), 208, and 303 of the federal Clean Water Act (CWA), as amended. The WQMP is an important part of the State's program for accomplishing its clean water goals.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. The 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 ground water 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 its public participation process, certification by the 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 water quality management plans remain in effect.

The April 2020 WQMP update addresses the following topics:

1. Projected Effluent Limits Updates for water quality planning purposes
2. Service Area Population for Municipal Wastewater Facilities
3. Designation of Management Agencies for Municipal Wastewater Facilities
4. Total Maximum Daily Load Update

¹ A formal definition for a water quality management plan is found in 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, and 01/2020.

The public comment period for the April WQMP update was from May 8, 2020 through June 9, 2020.

The Projected Effluent Limit Update section provides information compiled from February 1, 2020 through April 30, 2020, and is based on water quality standards, and 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 Agency sections for municipal wastewater facilities has been developed and evaluated by the TCEQ in cooperation with the Texas Water Development Board (TWDB) and regional water quality management planning agencies.

The Total Maximum Daily Load (TMDL) Update section provides information on proposed wasteload allocations for new dischargers and revisions to existing TMDLs and has been developed by the Water Quality Planning Division, TMDL Program.

Projected Effluent Limit Updates

Table 1 reflects proposed effluent limits for new dischargers and preliminary revisions to original proposed effluent limits for preexisting dischargers (MGD-Million Gallons per Day, CBOD₅ – 5 Day Carbonaceous Biochemical Oxygen Demand, NH₃-N – Ammonia-Nitrogen, BOD₅ – 5 Day Biochemical Oxygen Demand and DO – Dissolved Oxygen).

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 water quality standards (WQS) effective at the time of the TCEQ production of this update. 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 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
10232-001	1804	TX0067881	New Braunfels Utilities Comal	15.40	10	1284.36	3	385.31			4	
10364-002	0701	TX0047511	City of Port Arthur Jefferson	3.80	10	316.92	2	63.38			5	
10399-002	0506	TX0099112	City of Canton Van Zandt	1.30	5	54.21	1	10.84			6	Outfall 002 *Combined Outfalls 001 and 002 flow shall not exceed 1.30 MGD
10401-004	2486	TX0047058	City of Corpus Christi Nueces	24.0	7	1401.12	2	400.32			6	
10795-001	2307	TX0086045	Horizon Regional MUD El Paso	5.0	10	417.00	3	125.10			4	
11378-001	1804	TX0025208	Guadalupe Blanco River Authority Comal	2.95	5	123.02	2	49.21			4	
14245-001	0823	TX0123901	North Texas MWD Denton	25.0	5	1042.50	2	417.00			6	APR-OCT
				25.0	7	1459.50	4	834.00			6	NOV-MAR
15760-001	1011	TX0138975	LGI Homes Texas, Inc. Montgomery	0.700	10	58.38	3	17.51			4	
15819-001	1015	TX0139548	A&M Interests, Inc. Montgomery	0.060	10	5.00	3	1.50			4	
15822-001	1434	TX0139564	MRC Utility Co., L.L.C. Travis	0.18	5	7.51	2	3.00			4	

State Permit Number	Segment Number	EPA ID Number	Permittee Name 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
15825-001	1008	TX0139581	Quadvest, L.P. Harris	0.75	10	62.55	3	18.77			6	
15826-001	1202	TX0139599	Pecan Acres Creek, L.L.C. Fort Bend	0.0372	10	3.10	3	0.93			6	
15831-001	1206	TX0139661	Oak Creek RV, L.L.C. Parker	0.020	10	1.67	3	0.50			4	
15832-001	0505	TX0139645	Love's Travel Stops & Country Store, Inc. & Sunnyland Development, Inc. Smith	0.02	10	1.67	3	0.50			6	
15834-001	1004	TX0139670	Black Branch Creek WWTP L.L.C. Montgomery	0.350	10	29.19	3	8.76			6	
15839-001	1434	TX0139734	Brickston MUD Travis	0.20	5	8.34	2	3.34			4	
15843-001	1808	TX0139785	Kali Kate Services, Inc. Comal	0.0343					20	5.72	2	
15851-001	1011	TX0139882	CBA Strategic Fund, L.P. Montgomery	0.90	10	75.06	2	15.01			4	

Planning Information Summary

The Water Quality Planning Division of the TCEQ coordinated with the TWDB and regional planning agencies to compile the wastewater facility information in this section. Domestic facility financing decisions under the State Revolving Loan Fund (SRF) 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 the 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 wastewater treatment plant, additional treatment capacity, or the upgrading of a wastewater treatment plant 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 area where the entity is located. The seven water quality management planning areas designated by the Governor are Corpus Christi [Coastal Bend Council of Governments (CBCOG)], Killeen-Temple [Central Texas Council of Governments (CTCOG)], Texarkana [Ark-Tex Council of Governments (ATCOG)], Southeast Texas [South East Texas Regional Planning Council (SETRPC)], Lower Rio Grande Valley [Lower Rio Grande Valley Development Council (LRGVDC)], Dallas-Fort Worth [North Central Texas Council of Governments (NCTCOG)] and Houston [Houston-Galveston Area Council (H-GAC)]. Basin names are shown for agencies outside one of these areas.
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 the 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 utilized 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 shall be as established in the completed and certified detailed engineering studies conducted during facility planning under the SRF and other state loan programs.

Specific effluent quality for any wastewater discharges resulting from any of the facilities recommended in this document will be in accordance with the rule on the Texas Surface Water Quality Standards in effect at the time of permit issuance for the 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 Aledo	City limits	C	2040	Trinity River Basin/NCTCOG	0831	Parker	5/8/2020	Wastewater collection system improvements	2018	4,240
									2020	5,320
									2030	not provided
									2040	12,620
City of Athens	City limits	T	2030	Trinity River Basin	0818	Henderson	5/8/2020	Rehabilitation of WWTP filter and main line	2018	12,796
									2020	14,515
									2030	16,200
									2040	17,605
City of Bonham	City limits	C	2040	Red River Basin	0202	Fannin	5/8/2020	Wastewater collection system improvements	2018	10,044
									2020	12,603
									2030	16,000
									2040	22,000
City of Edgewood	City limits	C	2050	Sabine River Basin	0506	Van Zandt	5/8/2020	Lift station construction and collection line improvements	2016	1,476
									2020	1,564
									2030	1,683
									2040	1,774
City of Fort Worth	City limits	T	2032	Trinity River Basin/NCTCOG	0841	Tarrant	5/8/2020	Biosolids processing facility improvements	2017	1,095,589
									2020	1,155,940
									2030	1,369,535
									2040	1,588,201
City of Grand Saline	City limits	T	2040	Sabine River Basin	0506	Van Zandt	5/8/2020	WWTP Improvements	2017	3,122
									2020	3,390
									2030	3,532
									2040	3,641
City of Huntington	City limits	T/C	2050	Neches River Basin	0604	Angelina	5/8/2020	WWTP and collection system improvements	2019	2,468
									2020	2,504
									2030	2,680
									2040	2,826
City of Pharr	City limits	T/C	2020	Nueces-Rio Grande Coastal/LRGVDC	2202	Hidalgo	5/8/2020	WWTP and collection system improvements	2020	89,220
									2025	100,003
									2030	110,785
									2040	132,436

Planning Agency	Service Area	Needs	Needs Year	Basin Name / COG	Segment	County	WQMP Date	Comments	Year	Population
City of Troup	City limits	T	2020	Neches River Basin	0611	Smith/Cherokee	5/8/2020	WWTP Improvements	2018	1,629
									2020	1,747
									2030	1,886
									2040	1,944
Greater Texoma Utility Authority (GTUA) / City of Kaufman	City limits	T	2030	Trinity River Basin	0818	Kaufman	5/8/2020	WWTP Improvements	2019	6,912
									2020	7,754
									2030	9,593
									2040	11,744
Horizon Regional MUD	District boundary	C	2020	Rio Grande Basin	2307	El Paso	5/8/2020	Collection system improvements	2018	30,867
									2020	32,190
									2030	38,783
									2040	43,376
Trinity Bay Conservation District	District boundary	T	2020	Trinity River Basin	0801	Chambers	5/8/2020	New WWTP	2019	900
									2020	1,065
									2030	1,186
									2040	1,400
Westwood Shores MUD	District boundary	T	2025	Trinity River Basin	0803	Trinity	5/8/2020	WWTP Improvements	2019	2,100
									2020	2,142
									2030	2,611
									2040	3,183

Designated Management Agencies

In order 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 a state revolving fund 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 the services. The facilities listed in Table 3 have submitted Designated Management Agencies (DMA) resolutions to the TCEQ. The TCEQ submits this DMA information to the 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 Aledo	City limits	C	9/25/2019
City of Athens	City limits	T	12/1/2019
City of Bonham	Sewer CCN	C	6/14/2019
City of Edgewood	City limits	C	7/16/2019
City of Fort Worth	City limits	T	7/30/2019
City of Grand Saline	City limits	T	9/18/2019
City of Huntington	City limits	T/C	10/1/2019
City of Kaufman	Sewer CCN	T	7/14/2019
City of Pharr	City limits	T/C	10/3/2019
City of Troup	City limits	T	1/21/2019
Horizon Regional MUD	District boundary	C	10/2/2019
Trinity Bay Conservation District	District boundary	T	1/29/2020
Westwood Shores MUD	District boundary	T	10/1/2019

Total Maximum Daily Load Updates

The Total Maximum Daily Load (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, the State develops an implementation plan with wasteload allocations for point source dischargers to mitigate anthropogenic (human-caused) sources of pollution within the watershed and restore full use of the water body.

The development of TMDLs is a process of intensive data collection and analysis. After adoption by the TCEQ, TMDLs are submitted to the EPA for review and approval.

The attached appendices may reflect proposed wasteload allocations for new dischargers and revisions to TMDLs. To be consistent, updates will be provided in the same units of measure used in the original TMDL document. Also, note that for bacteria TMDLs, loads may be expressed in counts per day, organisms per day, colony-forming units per day, or similar expressions. These typically reflect different lab methods, but for the purposes of the TMDL program, these terms are considered synonymous.

Appendix I. 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

TMDL Updates to the Water Quality Management Plan (WQMP): 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)

The document *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 the TCEQ on 04/08/09 and approved by EPA on 06/11/09, and became an update to the state's WQMP. Twenty-five subsequent WQMP updates prior to this one have updated the list of individual wasteload allocations (WLAs) found in the original TMDL document. Additionally, two addenda to the original TMDL were submitted through the April 2013 and April 2015 WQMP updates. These addenda added two new assessment units (AUs) to the original TMDL project.

The purpose of this update is to make the following changes to the TMDL, presented in Table 1:

- add one new permit,
- remove one canceled permit, and
- update the WLA for one facility that has increased its permitted discharge and update the name of the facility.

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

In Table 54 of the TMDL, the WLAs for permitted facilities are the sum of the individual WLAs and the allowance for future growth within each AU. Therefore, these overall numbers did not change, and Table 54 of the TMDL remains the same

Table 1 – Change to Individual Wasteload Allocation (Updates Table 45, pp. 99-103 in the TMDL document.)

State Permit Number	Outfall	EPA Permit Number	AU	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – <i>E. coli</i> in Billion MPN/day	TMDL Comments
02104-000	001	TX0075370	1014_01	NATIONAL OILWELL VARCO LP	NA	NA	Permit canceled
15846-001	001	TX0139807	1014B_01	WELLVILLE, LLC COMPANY	0.1	0.238	New permit
14793-001	001	TX0129518	1014B_01	FORT BEND COUNTY MUD NO. 190	0.6	1.431	Decreased discharge and updated name

Table 2 - *E. coli* TMDL Summary Calculations (Updates Table 53, pp. 116-117 in the TMDL document.)

AU	TMDL (Billion MPN/day)	WLA_{WWTF} (Billion MPN/day)	WLA_{Storm Water} (Billion MPN/day)	LA (Billion MPN/day)	MOS (Billion MPN/day)	Upstream Load (Billion MPN/day)	Future Growth (Billion MPN/day)
1014_01	1,841.94	102.51	837.68	13.08	0	856.98	31.69
1014B_01	626.91	99.24	482.44	38.6	0	0	6.63

Appendix II. Four Total Maximum Daily Loads for Indicator Bacteria in Halls Bayou and Tributaries For Segment Numbers 1006D, 1006I, and 1006J

TMDL Updates to the WQMP: Halls Bayou and Tributaries (1006D, 1006I, and 1006J)

The document *Four Total Maximum Daily Loads for Indicator Bacteria in Halls Bayou and Tributaries For Segment Numbers 1006D, 1006I, and 1006J* was adopted by the TCEQ on 09/15/10 and approved by EPA on 09/27/10, and became an update to the state's Water Quality Management Plan (WQMP). It has had six subsequent WQMP updates prior to this one that provided individual wasteload allocations (WLAs) for permitted facilities.

The purpose of this update is to make the following changes to the TMDL, presented in Table 1:

- update the WLA for one facility that has increased its permitted discharge, and
- remove three canceled and three expired permits.

In addition, 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 within three assessment units (AUs), as is reflected in Table 18 of the TMDL, and presented in Table 2 here. In Table 19 of the TMDL, the WLAs for permitted facilities are the sum of the individual WLAs and the allowance for future growth within each AU. Therefore, these overall numbers did not change, and Table 19 of the TMDL remains the same.

Table 1 - Waste Load Allocation for Amended Permit (Table 16, pp. 35-36 in original TMDL document.)

State Permit Number	Outfall	EPA Permit Number	AU	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – <i>E. coli</i> in Billion MPN/day	TMDL Comments
12882-001	001	TX0094986	1006D_02	SOLHJOU BAHRAM	0.05	0.119	Increased discharge
01536-000	001	TX0007650	1006D_02	ALFA LAVAL ASHBROOK SIMON- HARTLEY	NA	NA	Permit canceled
10495-151	001	TX0075663	1006D_02	CITY OF HOUSTON	NA	NA	Permit canceled
14932-001	001	TX0131849	1006D_02	STRIPES LLC	NA	NA	Permit canceled
10825-001	001	TX0032255	1006D_02	ALDINE COMMUNITY CARE CENTER INC	NA	NA	Permit expired
11821-001	001	TX0072184	1006D_02	ANA ARAUJO JOHNSON	NA	NA	Permit expired
14001-001	001	TX0117692	1006J_01	JAMES WILLIAM HARTMAN	NA	NA	Permit expired

Table 2 - *E. coli* TMDL Summary Calculations for Halls Bayou Assessment Units (Only equations that have changed are included; Table 18, p. 41 in original TMDL document.

AU	Sampling Location	Stream Name	TMDL (Billion MPN/day)	WLA_{WWTF} (Billion MPN/day)	WLA_{Storm Water} (Billion MPN/day)	LA (Billion MPN/day)	MOS (Billion MPN/day)	Future Growth (Billion MPN/day)
1006D_01	20023	Halls Bayou below US 59	463	42.44	385.4	0	23.2	11.96
1006D_02	11126	Halls Bayou above US 59	280	25.51	233	0	14	7.49
1006J_01	16665	Unnamed Tributary of Halls Bayou	26.1	0.24	24.4	0	1.31	0.15

Appendix III. 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

TMDL Updates to the Water Quality Management Plan (WQMP): Watersheds Upstream of Lake Houston (1004E, 1008, 1008H, 1009, 1009C, 1009D, 1009E, 1010, and 1011)

The document *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 the TCEQ on 04/06/11 and approved by EPA on 06/29/11, and became an update to the state's WQMP. Thirty-one subsequent WQMP updates prior to this one have updated the list of individual wasteload allocations (WLAs) found in the original TMDL document. Additionally, two addenda to the original TMDL were submitted through the October 2013 and October 2019 WQMP updates. These addenda added eight new assessment units (AUs) to the original TMDL project.

The purpose of this update is to make the following changes to the TMDL, presented in Table 1:

- add four new permits,
- update the WLA for one facility that has decreased its permitted discharge, and
- remove three canceled permits.

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 in six AUs. This was originally presented in Table 18 in the original TMDL document, and the affected AUs are included here as Table 2.

For AU 1008_02, the existing future growth allocation was insufficient to cover the increased flow to the AU for this update. However, ample loading is available in the $WLA_{StormWater}$ and load allocation (LA) terms. Loading was taken from each of those terms (in a way that maintains the proportions for them as updated in the July 2016 WQMP update) and allotted to future growth. This results in no changes to the overall TMDL allocation.

In Table 19 of the original TMDL, the WLAs for permitted facilities are the sum of the individual WLAs and the allowance for future growth within each AU. Because loading was moved from the $WLA_{StormWater}$ and LA terms to be used for future growth for AU 1008_02, this AU is updated in Table 3. These overall numbers for the other AUs did not change, and again this results in no changes to the overall TMDL allocations.

Table 1 – Changes to Individual Wasteload Allocations (Updates Table 16, pp. 49-56 in the TMDL document.)

State Permit Number	Outfall	EPA Permit Number	AU	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – <i>E. coli</i> in Billion MPN/day	TMDL Comments
15825-001	001	TX0139581	1008_02	QUADVEST, L.P.	0.75	1.789	New permit
15841-001	001	TX0139751	1008_02	SOUTH CENTRAL WATER COMPANY	0.10	0.238	New permit
15760-001	001	TX0138975	1011_02	LGI HOMES TEXAS, INC.	0.70	1.669	New permit
15851-001	001	TX0139882	1011_02	CBA STRATEGIC FUND, L.P.	0.90	2.146	New permit
15145-002	001	TX0138151	1011_02	BRADBURY DEVELOPMENT LIMITED	0.6	1.431	Decreased discharge
12703-001	001	TX0092843	1008_03	MAGNOLIA ISD	NA	NA	Permit canceled
10528-001	001	TX0026450	1009_03	CHAMPIONS MUD	NA	NA	Permit canceled
11572-001	001	TX0047775	1009_04	HARRIS COUNTY MUD 249	NA	NA	Permit canceled

Table 2 – *E. coli* TMDL Summary Calculations for Lake Houston Assessment Units (Updates Table 18, pp. 61 in the TMDL document.)

AU	Sampling Location	Stream Name	TMDL (Billion MPN /day)	WLA _{WWTF} (Billion MPN /day)	WLA _{StormWater} (Billion MPN /day)	LA (Billion MPN /day)	MOS (Billion MPN /day)	Future Growth (Billion MPN /day)
1008_02	11314	Spring Creek	287	10.53	70.74	191.25	14.4	0.08
1008_03	11313	Spring Creek	1420	105.14	322	869	70.9	52.96
1008_04	11312	Spring Creek	1510	140.82	334	902	75.7	57.48
1009_03	11328	Cypress Creek	1340	186.76	415	574	67.0	97.24
1009_04	11324	Cypress Creek	1550	225.94	469	648	77.4	129.66
1011_02	17746	Peach Creek	422	11.09	34.5	348.5	21.1	6.81

Table 3 – *E. coli* TMDL Final Calculations for Lake Houston Assessment Units (Updates Table 19, pp. 62 in the TMDL document.)

AU	TMDL (Billion MPN/day)	WLA _{WWTF} (Billion MPN/day)	WLA _{StormWater} (Billion MPN/day)	LA (Billion MPN/day)	MOS (Billion MPN/day)
1008_02	287	10.61	70.74	191.25	14.4

In addition, Table 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 Assessment Units 1008B_01, 1008B_02, 1008C_01, 1008C_02, 1008E_01, and 1011_01). One of the canceled permits, two of the new permits, and the permit with the decreased discharge discussed earlier in this update also affect three AUs in this addendum.

Table 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. Five of these (1008B_01, 1008B_02, 1008C_01, 1008C_02, and 1008E_01) were lumped together as contributing loading to 1008_03 and 1008_04 in the original TMDL. The sixth additional AU (1011_01) was treated as an upstream contributing load to 1011_02 in the original TMDL. The permit for one facility with a canceled permit (12703-001/ TX0092843) affects the loadings of both 1008E_01 and 1008B_02 as well as the original TMDL AUs 1008_03 and 1008_04. The new permits for two facilities (15760-001/TX0138975 and 15851-001/TX0139882) and the permit with the decreased discharge (15145-0002/ TX0138151) affect the loading of 1011_01 as well as the original TMDL AU 1011_02.

In Table 13 of the TMDL addendum, the WLAs for permitted facilities are the sum of the individual WLAs and the allowance for future growth within each AU. Therefore, these overall numbers did not change, and Table 13 of the TMDL addendum remains the same.

Table 4 – Changes to Individual Waste Load Allocations and Permittee Names (Updates Table 11, p. 23 in the TMDL Addendum document.)

State Permit Number	Outfall	EPA Permit Number	AU	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
12703-001	001	TX0092843	1008E_01	MAGNOLIA ISD	NA	NA	Permit canceled
15760-001	001	TX0138975	1011_01	LGI HOMES TEXAS, INC.	0.70	1.669	New permit
15851-001	001	TX0139882	1011_01	CBA STRATEGIC FUND, L.P.	0.90	2.146	New permit
15145-002	001	TX0138151	1011_01	BRADBURY DEVELOPMENT LIMITED	0.6	1.431	Decreased discharge

Table 5 – *E. coli* TMDL Summary for Impaired AUs of the Addendum (Updates Table 12, p. 26 in the TMDL Addendum document.) Loads are in billion MPN/day.

AU	Stream Name	TMDL	MOS	WLA_{WWTF}	WLA_{SW}	LA_{AU}	LA_{RES}	LA_{TOTAL}	Future Growth
1008B_02	Upper Panther Branch	109	5.45	20.43	56.29	14.78	0	14.78	12.05
1008E_01	Bear Branch	91.1	4.56	1.73	75.22	8.98	0	8.98	0.61
1011_01	Peach Creek	214.1	10.7	17.27	2.79	183.18	0	183.18	0.16

Appendix IV. 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

TMDL Updates to the WQMP: Lake Houston, East Fork San Jacinto River, West Fork San Jacinto River, and Crystal Creek Watersheds (1002, 1003, 1004, and 1004D)

The document *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 the TCEQ on 08/24/16 and approved by EPA on 10/07/16, and became an update to the state's Water Quality Management Plan (WQMP). Five subsequent WQMP updates prior to this one have updated the list of individual wasteload allocations (WLAs) found in the original TMDL document. Additionally, an addendum to the original TMDL was submitted through the October 2018 WQMP update. This addendum added one new assessment unit (AU) to the original TMDL project.

The purpose of this update is to make the following changes to the TMDL, presented in Table 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 future growth in three AUs. This was originally presented in Table 17 in the original TMDL document, and the three affected AUs are included here as Table 2.

In Table 18 of the original TMDL, the WLAs for permitted facilities are the sum of the individual WLAs and the allowance for future growth within each AU. Therefore, these overall numbers did not change, and Table 18 of the TMDL remains the same.

Table 1 – Changes to Individual Waste Load Allocations (Updates Table 13, pp. 54-55 in the TMDL document.)

State Permit Number	Outfall	EPA Permit Number	AU	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – <i>E. coli</i> in Billion MPN/day	TMDL Comments
15834-001	001	TX0139670	1004_01	BLACK BRANCH CREEK WWTP LLC	0.35	0.8347	New permit
15819-001	001	TX0139548	1015A_01*	A&M INTERESTS, INC.	0.060	0.1431	New permit

* Mound Creek (1015A) is a tributary to Lake Creek, which discharges to West Fork San Jacinto River AU 1004_02.

Table 2 – *E. coli* TMDL Summary Calculations for Lake Houston Assessment Units (Updates Table 17, p. 59 in the TMDL document.) All loads expressed as billion MPN/day.

AU	Segment Name	TMDL	MOS	WLA _{WWTF}	WLA _{SW}	LA _{AU}	LA _{TRIB}	LA _{RES}	LA _{TOTAL}	Future Growth
1002_06	Lake Houston	6,197	106.57	97.28	288.17	1,535.70	3,106.90	958.70	5,601.30	103.68
1004_01	West Fork San Jacinto River	2,779	88.77	94.07	196.81	1,294.21	44.86	958.70	2,297.77	101.58
1004_02	West Fork San Jacinto River	1,141	9.12	44.56	4.04	75.26	0	958.70	1,033.96	49.32

In addition, Table 3 below provides an update to Table 9 found in the October 2018 addendum to this TMDL project (Addendum One to 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: One Total Maximum Daily Load for Indicator Bacteria in Mound Creek For Segment 1015A, Assessment Unit 1015A_01). One of the new permits discussed earlier in this update also affects an AU in this addendum.

Table 4 below provides updates to Table 10 found in the October 2018 addendum to this TMDL project. The addendum added one AU that was not included in the original TMDL. This AU (1015A_01) was included as a contributing loading to 1002_06, 1004_01, and 1004_02 in the original TMDL. The permit for one new facility (15819-001/ TX0139548) affects the loadings of both 1015A_01 as well as the original TMDL AUs 1002_06, 1004_01, and 1004_02.

In Table 11 of the TMDL addendum, the WLAs for permitted facilities are the sum of the individual WLAs and the allowance for future growth within each assessment unit. Therefore, these overall numbers did not change, and Table 11 of the TMDL addendum remains the same.

Table 3 – Changes to Individual Waste Load Allocations and Permittee Names (Updates Table 9, p. 19 in the TMDL Addendum Document.)

State Permit Number	Outfall	EPA Permit Number	AU	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
15819-001	001	TX0139548	1015A_01	A&M INTERESTS, INC.	0.06	0.1431	New permit

Table 4 – *E. coli* TMDL Summary for Impaired AUs of the Addendum (Updates Table 10, p. 20 in the TMDL Addendum document.) Loads are in billion MPN/day.

AU	Stream Name	TMDL	WLA _{WWTF}	WLA _{sw}	LA	Future Growth	MOS
1015A_01	Mound Creek	82.431	0.513	0.614	76.106	1.076	4.122