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FINAL

January 2020 Update to the Texas Water Quality Management Plan

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Prepared by the
Office of Water
Water Quality Division

Compiled and distributed by the
Water Quality Assessment Section
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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.

Texas Commission on Environmental Quality

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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 updates[2], 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 January 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, and 10/2019.

The public comment period for the January WQMP update was from February 7, 2020 through March 10, 2020.

The Projected Effluent Limit Update section provides information compiled from November 1, 2019 through January 31, 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, $CBOD_5$ – 5 Day Carbonaceous Biochemical Oxygen Demand, NH_3-N – Ammonia-Nitrogen, BOD_5 – 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
10096-001	2107	TX0057509	City of Lytle Atascosa	0.90	10	75.06	3	22.52			4	
10846-001	2481	TX0024287	Nueces County WCID No. 4 Nueces	2.50	10	208.50	2	41.70			5	
13638-001	1011	TX0093220	Roman Forest Consolidated MUD Montgomery	0.70	10	58.38	3	17.51			4	
14792-001	0830	TX0093092	Stonetown Benbrook, L.L.C. Tarrant	0.5					10	41.70	6	
14903-001	1008	TX0072702	City of Magnolia Montgomery	2.00	7	116.76	2	33.36			6	
15668-001	0829	TX0138444	City of Fort Worth Tarrant	15.00	5	625.50	2	250.20			6	
15809-001	1014	TX0139424	621 Katy, L.L.C. Harris	0.984	10	82.07	2	16.41			6	
15815-001	1004	TX0139505	Deer Trail Water District, L.L.C. San Jacinto	0.112	10	9.34	3	2.80			6	
15816-001	1001	TX0139513	Hannover Estates, Ltd. Harris	0.45	10	37.53	2	7.51			4	
15821-001	1205	TX0139556	City of Granbury Hood	2.00	5	83.40	1	16.68			6	
15824-001	1008	TX0139572	Guefen Development Co. Montgomery	0.043	10	3.59	3	1.08			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
15829-001	1008	TX0139637	Woodhaven Interests, L.L.C. Waller	0.45	10	37.53	3	11.26			6	
15830-001	1002	TX0139653	LH Ranch WWTP-1, Ltd. Harris	0.36	10	30.02	3	9.01			4	
15836-001	1808	TX0139688	Regal, L.L.C. Guadalupe	0.095	7	5.55	2	1.58			5	
15838-001	1012	TX0139726	Cole, Jimmy Edwin Montgomery	0.025	10	2.09	3	0.63			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
Acton MUD	District Boundary	T	2040	Brazos River Basin/NCTCOG	1204	Hood	1/24/2020	WWTP improvements and expansion	2020	19,608
									2025	25,614
									2030	31,620
									2035	35,576
Angelina & Neches River Authority	District boundary	T	2040	Neches River Basin	0615	Angelina	1/3/2020	WWTP decommission, transfer, and improvements	2020	2,230
									2025	2,307
									2030	2,386
									2035	2,451
City of Childress	City Limits	T	2040	Red River Basin	0207	Childress	12/16/2019	WWTP improvements	2020	1,866
									2025	1,913
									2030	1,960
									2035	2,007
City of Lefors	City Limits	T	2039	Red River Basin	0224	Gray	12/16/2019	WWTP Improvements	2020	492
									2025	519
									2030	545
									2035	577
Green Valley SUD	District boundary	T/C	2040	San Antonio River Basin	1902	Guadalupe	12/16/2019	New WWTP and collection system construction	2020	1,459
									2025	4,254
									2030	7,049
									2035	8,961
Harris County MUD No. 148	District boundary	T	2040	San Jacinto River Basin/H-GAC	1016	Harris	1/24/2020	WWTP expansion.	2020	5,581
									2025	6,181
									2030	6,631
									2035	7,156
San Antonio River Authority	District boundary	T	2029	San Antonio River Basin	1902B	Bexar	12/16/2019	WWTP expansion	2020	93,277
									2025	99,169
									2030	103,843
									2035	103,843
Victoria County WCID No. 1	District boundary	T	2020	Lavaca-Guadalupe Coastal Basin	1705	Victoria	1/3/2020	WWTP expansion	2020	4,050
									2025	5,900
									2030	6,900
									2035	8,000

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
Acton MUD	District boundary	T	9/21/2016
Angelina & Neches River Authority	District boundary	T	11/6/2019
City of Childress	City limits	T	10/8/2019
City of Lefors	City limits	T	10/3/2019
Green Valley SUD	District boundary	T/C	10/3/2019
Harris County MUD No. 148	District boundary	T	12/13/2019
San Antonio River Authority	District boundary	T/C	9/10/2019
Victoria County WCID No. 1	District boundary	T	10/4/2019

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-four 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 change to the TMDL, presented in Table 1:

- add one new permit.

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 one AU. This was originally presented in Table 53 in the TMDL document, and the affected AU is included here as Table 2.

For AU 1014H_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. A small amount was taken proportionally from each of those terms and allotted to future growth. This results in no change to the overall TMDL allocation.

In Table 54 of the TMDL, the WLAs for permitted facilities are the sum of the individual WLAs and the AFG within each AU. Because a small amount of loading was moved from the $WLA_{StormWater}$ and LA terms to be used for future growth for AU 1014H_02, that AU is updated in Table 3. Again, this results in no change to the overall TMDL allocation.

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) – *E. coli* in Billion MPN/day	TMDL Comments
15809-001	001	TX0139424	1014H_02	621 KATY, LLC	0.984	2.347	New permit

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)
1014H_02	175.43	42.07	119.91	13.32	0	0	0.13

Table 3 – Final *E. coli* TMDL Calculations (Updates Table 54, pp. 118-119 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)
1014H_02	175.43	42.2	119.91	13.32	0

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 five 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 change to the TMDL, presented in Table 1:

- remove a permit for a facility that discharges outside the project watershed.

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 one assessment unit (AU), 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) – *E. coli* in Billion MPN/day	TMDL Comments
12996-001	001	TX0096679	1006_03	AQUA TEXAS, INC.	N/A	N/A	Discharges outside of TMDL watershed. Had been incorrectly included in the TMDL allocations as discharging to 1006D_01.

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	44.4	385.4	0	23.2	10.0

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 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 was submitted through the October 2013 and October 2019 WQMP updates. This 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 two new permits, and
- update the WLA for one facility that has increased its permitted discharge.

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 four 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, that 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 allocation.

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) – *E. coli* in Billion MPN/day	TMDL Comments
15829-001	001	TX0139637	1008_02	WOODHAVEN INTERESTS, LLC	0.45	1.073	New permit
15824-001	001	TX0139572	1008B_02	GUEFEN DEVELOPMENT COMPANY	0.043	0.103	New permit
13638-001	001	TX0093220	1011_02	ROMAN FOREST CONSOLIDATED MUD	0.7	1.669	Increased discharge

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	8.50	71.26	192.68	14.4	0.16
1008_03	11313	Spring Creek	1420	103.23	322	869	70.9	54.87
1008_04	11312	Spring Creek	1510	138.90	334	902	75.7	59.40
1011_02	17746	Peach Creek	422	17.77	34.5	348.5	21.1	0.13

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	8.66	71.26	192.68	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 new permits discussed earlier in this update also affects an AU 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 new facility (15824-001/ TX0139572) affects the loadings of both 1008B_02 as well as the original TMDL AUs 1008_03 and 1008_04.

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 assessment unit. 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) - *E. coli* in Billion MPN/day	TMDL Comments
15824-001	001	TX0139572	1008B_02	GUEFEN DEVELOPMENT COMPANY	0.043	0.103	New permit

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	20.55	56.29	14.78	0	14.78	11.93

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). Four 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 change to the TMDL, presented in Table 1:

- add a 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 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) – *E. coli* in Billion MPN/day	TMDL Comments
15815-001	001	TX0139505	1004D_01	DEER TRAIL WATER DISTRICT, LLC	0.112	0.2671	New permit

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	96.31	288.17	1,535.70	3,106.90	958.70	5,601.30	104.65
1004_01	West Fork San Jacinto River	2,779	88.77	93.09	196.81	1,294.21	44.86	958.70	2,297.77	102.56
1004D_01	Crystal Creek	137.8	6.89	5.05	18.79	100.92	0	0	100.92	6.15

Appendix V. One Total Maximum Daily Load for Zinc in Nueces Bay For Segment 2482

TMDL Updates to the Water Quality Management Plan (WQMP): Nueces Bay (Segment 2482)

The document *One Total Maximum Daily Load for Zinc in Nueces Bay for Segment Number 2482* was adopted by the TCEQ on 11/01/2006 and approved by EPA on 12/15/06, and became an update to the state's Water Quality Management Plan (WQMP). It has had two 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 change to the TMDL, presented in Table 1:

- provide a WLA for one facility.

Table 1 – Change to Individual Waste Load Allocation (Updates Table 3, pp. 14 in the TMDL document.)

State Permit Number	Outfall	EPA Permit Number	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – Zinc kg/day	TMDL Comments
13644-001	001	TX0110337	2101	SAN PATRICIO COUNTY MUD NO. 1	0.075	0.047	Assigning WLA

Table 2 – TMDL Equation (Updates text found on p. 20 of the TMDL document. Amounts are in kg/day of zinc.)

Segment	TMDL	WLA-Sum	LA-Sum	Allowance for Future Growth
2482	65.9	32.9	26.6	6.4

Appendix VI. One Total Maximum Daily Load for Indicator Bacteria in Oso Creek For Segment 2485A

TMDL Updates to the WQMP: Oso Creek (2485A)

The document *One Total Maximum Daily Load for Indicator Bacteria in Oso Creek For Segment 2485A* was adopted by the TCEQ on 07/31/19 and approved by EPA on 10/25/19, and became an update to the state's Water Quality Management Plan (WQMP). It has not had any WQMP updates prior to this one.

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

- update the wasteload allocation (WLA) for one facility that has decreased its permitted discharge.

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 the single assessment unit (AU). This was originally presented in Table 19 in the original TMDL document, and the affected AU is included here as Table 2.

In Table 20 of the original TMDL, the WLAs for permitted facilities are the sum of the individual WLAs and the allowance for future growth within the AU. Therefore, these overall numbers did not change, and Table 20 of the TMDL remains the same.

Table 1 – Changes to Individual Waste Load Allocations (Updates Table 13, p. 36 in the TMDL document.)

State Permit Number	Outfall	EPA Permit Number	AU	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) - *E. coli* in Billion MPN/day	WLA - Enterococci in Billion MPN/day	TMDL Comments
11134-002	001	TX0136620	2485A_01	CORPUS CHRISTI PEOPLE'S BAPTIST CHURCH	0.010	0.045	0.013	Decreased permitted discharge

Table 2 – *Enterococci* TMDL Summary Calculation for Oso Creek Watershed (Updates Table 19, p. 42 in the TMDL document.). All loads expressed as billion MPN/day.

AU	Stream Name	TMDL	MOS	WLA_{WWTF}	WLA_{SW}	LA	Future Growth
2485A_01	Oso Creek	122.068	6.103	24.002	26.748	58.874	6.341