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FINAL

July 2011 Update to the Texas Water Quality Management Plan

Prepared by the:
Office of Water, Water Quality Division

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

July 2011 Update to the Texas Water Quality Management Plan

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WQMP updates are also available on the TCEQ web site at:

< www.tceq.texas.gov/waterquality/assessment/WQmanagement_updates.html >

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



Bryan W. Shaw PhD., *Chairman*
H.S. Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*

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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 updates², will become part of the WQMP after completion of its public participation process, certification by the TCEQ on behalf of the Governor of Texas, and approval by the 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 July 2011 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 Updates

The Projected Effluent Limit Update section provides information compiled from May 1, 2011 through July 31, 2011, 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.

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 and 04/2011.

The Service Area Population and Designation of Management Agencies 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 waste load 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 effective at the time of the TCEQ production of this update. Water Quality Standards 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
10086-002	1007	0099511	Fort Bend County WCID No. 2 Harris	4.0	10	333.60	2	66.72			6	
10172-002	0823	0027723	City of Frisco Collin	0.30					10	25.02	4	
10348-001	0838	0025011	Trinity River Authority of Texas Ellis	0.90*	10	75.06	3	22.52			4	Outfall 001
			Combined flow for Outfalls 001 & 002 not to exceed permitted flow for Outfall 002	6.0	5	250.20	1.6	80.06			6	Outfall 002
10568-008	1101	0133043	City of League City Galveston	12.0	5	500.40	2	200.16			4	
10948-001	1202	0023809	City of Hempstead Waller	0.98	10	81.73	3	24.52			4	
11626-001	0809	0057231	City of Newark Wise	0.15	7	8.76	2	2.50			6	
11722-001	0802	0062961	Texas Parks and Wildlife Department Polk	0.030	30	7.51	17	4.25			4	
11845-002	1428	0094927	City of Pflugerville Travis	5.85	5	243.95	2	97.58			6	
12003-002	1245	0132217	Fort Bend County MUD No. 25 Fort Bend	0.5	5	20.85	2	8.34			4	
12701-001	1110	0093068	City of Missouri City Fort Bend	3.0	5	125.10	2	50.04			6	

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
14745-001	1245	0129119	Fort Bend County MUD No. 169 and City of Fulshear Fort Bend	1.0	10	83.40	3	25.02			6	
14917-001	1245	0131717	Fort Bend County MUD No. 134 Fort Bend	0.95	5	39.62	2	15.85			6	
14988-001	1908	0132837	South Central Water Company Comal	0.50	5	20.85	2	8.34			4	
14998-001	0821	0132888	East Fork Partners LLC Collin	2.50	7	145.95	2	41.70			6	
15000-001	1251	0132969	Williamson County MUD No. 19 Williamson	1.40	5	58.38	2	23.35			4	
15001-001	1006	0133001	William Emmett Hartzog, Jr. Harris	0.0056	10	0.47	3	0.14			4	Apr-Oct
				0.0056	10	0.47	5	0.23			4	Nov-Mar
15006-001	1004	0133078	Quadvest, L.P. Montgomery	0.225	10	18.77	3	5.63			6	

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.
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 Alton	City of Alton	C	2011	Rio Grande Basin/LRGVDC	2202	Hidalgo	5/1/2011	Expansion of Collection System	2010	2,312
									2015	2,359
									2020	2,406
									2030	2,500
City of Burnet	City of Burnet	T/C	2011	Colorado Basin	1404	Burnet	07/01/2011	Collection System Improvements	2010	8,843
									2020	12,923
									2030	17,004
									2040	19,044
City of La Feria	City of La Feria	C	2011	Rio Grande Basin/LRGVDC	2202	Cameron	5/1/2011	Collection System to colonias and rural areas	2010	7,954
									2020	9,898
									2030	11,908
									2040	13,912
City of Robstown	City of Robstown	T/C	2011	Nueces Coastal/CBCOG	2485	Nueces	5/1/2011	Rehabilitation of Collection System	2010	12,727
									2020	12,727
									2030	12,727
									2040	12,727
San Antonio Water System	City of San Antonio	T/C	2011	San Antonio Basin	1903/1906	Bexar	07/01/2011	Collection System Improvements	2010	1,507,800
									2020	1,836,932
									2030	2,025,220
San Patricio MWD	District Boundaries	T	2011	Nueces Coastal/CBCOG	2482	Nueces	07/01/2011	Wastewater Distribution System	N/A	N/A
									N/A	N/A
									N/A	N/A
									N/A	N/A

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 Updates

Planning Agency	Service Area	DMA Needs	DMA Date	DMA Area/Comments
City of Robstown	City Limits	T/C	5/17/2010	

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 waste load 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 U.S. Environmental Protection Agency for review and approval.

The attached appendixes may reflect proposed waste load 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. And note that for bacteria TMDLs, loads may be expressed in counts for 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. Nine Total Maximum Daily Loads for Bacteria in Clear Creek and Tributaries: Segments 1101, 1101B, 1101D, 1102, 1102A, 1102B, 1102C, 1102D, and 1102E

TMDL Updates to the Water Quality Management Plan (WQMP): Clear Creek and Tributaries (Segments 1101, 1101B, 1101D, 1102, 1102A, 1102B, 1102C, 1102D, and 1102E)

The document *Nine Total Maximum Daily Loads for Bacteria in Clear Creek and Tributaries: Segments 1101, 1101B, 1101D, 1102, 1102A, 1102B, 1102C, 1102D, and 1102E* was adopted by the TCEQ on 9/10/08 and approved by EPA on 3/6/09, and became an update to the state's Water Quality Management Plan. A previous WQMP update provided changes to individual Waste Load Allocations (WLAs) and updated the TMDL equations.

The purpose of this update is to make the following changes to the TMDL:

- Provides a WLA for a new facility (Table 1)
- Remove two facilities (Table 1)
- Update the affected TMDL equations (Tables 2-4)

Additional capacity was added to the allowance for future growth for 1102_02, which also increased the overall TMDL allocation. This was a result of the substantial discharge of the new facility added in this WQMP update, which exceeded the estimated growth in that part of the watershed.

Table 1 - Permitted Bacteria Allocations (Updates Table 16, p. 47 in the original TMDL.)

State Permit Number	Outfall	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – Fecal Coliform MPN/day	Waste Load Allocation (WLA) – <i>E. coli</i> MPN/day	Waste Load Allocation (WLA) – Enterococci MPN/day	Comments
10568-008	001	1101_02	City of League City	12	9.08E+10	5.72E+10	1.59E+10	New discharge
13864-001	001	1102_01	Fresno Manufacturing LLC	n/a	n/a	n/a	n/a	Permit revoked
10134-010	002	1102_03	City of Pearland	n/a	n/a	n/a	n/a	Permit authorization removed

Table 2 - *E. coli* and Fecal Coliform TMDL Calculations for Freshwater Segments (Table 18, p. 50 in original TMDL)

Segment	Sampling Location	Stream Name	Indicator Bacteria	TMDL (counts/day)	WLA _{WWTF} (counts/day)	WLA _{Storm Water} (counts/day)	LA (counts/day)	MOS (counts/day)	Future Growth (counts/day)
1102	14229	Clear Creek Above Tidal	<i>E. coli</i>	1.31E+11	5.20E+10	5.36E+09	2.49E+09	6.58E+09	6.48E+10

Table 3 - Enterococci TMDL Calculations for Tidal Segments (Table 19, p. 51 in TMDL)

Segment	Stream Name	TMDL (counts/day)	WLA _{WWTF} (counts/day)	WLA _{StormWater} (counts/day)	LA (counts/day)	MOS (counts/day)	Future Growth (counts/day)
1101	Clear Creek Tidal (Reaches A through K, Tributaries A through E, TribOne, and Magnolia Creek)	7.68E+12	5.11E+10	6.72E+12	5.07E+11	3.85E+11	1.76E+10

Table 4 – TMDL Allocation Table (Updates Table 21, p. 52 in the original TMDL.)

Segment	Stream Name	Assessment Unit	Indicator Bacteria	TMDL (counts/day)	WLA _{WWTF} (counts/day)	WLA _{StormWater} (counts/day)	LA (counts/day)	MOS (counts/day)	Future Growth (counts/day)
1101	Clear Creek Tidal	1101_02	<i>Enterococcus</i>	2.71E+12	1.68E+10	2.37E+12	1.79E+11	1.36E+11	8.23E+09
1102	Clear Creek Above Tidal	1102_01	<i>E. coli</i>	2.18E+10	9.54E+09	1.29E+09	6.01E+08	1.09E+09	9.28E+09
1102	Clear Creek Above Tidal	1102_03	<i>E. coli</i>	1.01E+11	3.79E+10	1.91E+09	8.90E+08	5.07E+09	5.52E+10

Appendix II. One Total Maximum Daily Load for Bacteria in Gilleland Creek: Segment 1428C

TMDL Updates to the Water Quality Management Plan (WQMP): Gilleland Creek (Segment 1428C)

The document *One Total Maximum Daily Load for Bacteria in Gilleland Creek: Segment 1428C* was adopted by the TCEQ on 8/08/07 and approved by EPA on 04/21/09, and became an update to the state's Water Quality Management Plan (WQMP). Subsequent WQMP updates have provided individual Waste Load Allocations (WLAs) for permitted facilities and corrected errors in the original TMDL equations.

The purpose of this update is to make the following changes (both given in Table 1) to the TMDL:

- Provide a new WLA for a facility with an amended permit to increase its discharge
- Remove a facility with a canceled permit

Table 1 - Permitted Bacteria Allocations (Table 6, p. 16 in original TMDL document)

State Permit Number	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – <i>E. coli</i> cfu/day	TMDL/ Comments
11845-002	1428C	City of Pflugerville (Upper Gilleland Creek WWTP)	5.85	2.66×10^{10} cfu <i>E. coli</i> per day	Increase discharge
12733-001	1428C	Dessau Fountains Estates LLC (Silverado WWTP)	N/A	N/A	Permit canceled

In addition, the changes reflected in this update resulted in a change to the overall WLA for the TMDL as is reflected on page 16 of the TMDL. The new WLA is 6.51×10^{10} cfu *E. coli* per day.

Since the Load Allocation (LA) numbers for this TMDL are overwhelmingly greater than the WLA amounts, there is no significant change to the overall TMDL allocation.

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

TMDL Updates to the Water Quality Management Plan (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 WQMP. A previous WQMP update made corrections and changes to the original Waste Load Allocations (WLAs) for bacteria in the watershed.

The purpose of this update is to include an individual WLA for a new permit (Table 1). This permit replaces an expired permit that was included in the original TMDL and removed in the earlier WQMP update.

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 two assessment units, 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 assessment unit. Therefore, these overall numbers did not change, and Table 19 of the TMDL remains the same.

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

State Permit Number	Outfall	EPA Permit Number	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
15001-001	001	TX0133001	1006D_02	William Emmett Hartzog Jr.	0.0056	0.0134	New permit

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)

Assessment Unit	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 (Billion MPN/day) Growth
1006D_01	20023	Halls Bayou Below US 59	463	42.6*	382	3.4	23.2	12.1*
1006D_02	11126	Halls Bayou Above US 59	280	25.4*	233	0	14	6.94*

*Numbers changed, but are not apparent given the significant digits used in the table.

Appendix IV. 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 Water Quality Management Plan (WQMP).

The TMDL document included individual Waste Load Allocations (WLAs) for bacteria for entities within these watersheds. The purpose of this update is to make the following changes to the TMDL (all in Table 1):

- Adjust the individual WLAs for permits being amended to increase or decrease their discharges.
- Remove the individual WLAs for permits that were included in the original TMDL but have since been canceled or withdrawn or have expired.
- Establish individual WLAs for permits that were not included in the original TMDL.

Because of the large number of changes to the list of dischargers since the TMDL document was first drafted, Table 1 will include all the facilities in the TMDL watersheds (updating all of Table 16 in the TMDL document). Also, this will allow the outfall number for every discharge to be included.

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 (AFG) in all assessment units but two (1004E_02 and 1009C_01). This was originally presented in Table 18 in the TMDL document, and the entire updated table is included here as Table 2.

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 assessment unit. Therefore, these overall numbers did not change, and Table 19 of the TMDL remains the same.

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

State Permit Number	Out-fall	EPA Permit Number	Segment Number	Permittee Name	Flow MGD	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
11871-001	001	TX0072702	1008_02	City of Magnolia	n/a	n/a	Permit expired
14903-001	001	TX0072702	1008_02	City of Magnolia	0.65	1.55	Replaces preceding permit
12402-001	001	TX0086053	1008_02	Houston Oaks Golf Management, LP	n/a	n/a	Permit expired
14901-001	001	TX0086053	1008_02	Terra Verde Utility Co.	0.01	0.02	Replaces preceding permit and changed name
12898-001	001	TX0095125	1008_02	Aqua Utilities, Inc.	0.075	0.18	
13115-001	001	TX0097969	1008_02	Clovercreek MUD	n/a	n/a	Permit expired
14907-001	001	TX0097969	1008_02	Clovercreek MUD	0.12	0.29	Replaces preceding permit
13653-001	001	TX0110663	1008_02	Magnolia ISD	0.015	0.04	
14007-001	001	TX0117846	1008_02	Aqua Development Inc.	0.13	0.31	Name changed
14133-001	001	TX0119857	1008_02	White Oak Utilities, Inc.	0.2	0.48	
14266-001	001	TX0094315	1008_02	HMW Special Utility District	0.051	0.12	Increase discharge and corrected name
14542-001	001	TX0126934	1008_02	Quadvest LP	0.15	0.36	Name changed
14624-001	001	TX0127973	1008_02	Terra Verde Utility Co.	0.02	0.05	Name changed
10616-001	001	TX0022381	1008_03	City of Tomball	1.5	3.58	
10857-001	001	TX0025399	1008_03	Montgomery County WCID #1	0.42	1.00	
11968-001	001	TX0077275	1008_03	Tecon Water Company, LP	n/a	n/a	Permit canceled
12303-001	001	TX0085693	1008_03	Aqua Texas Inc.	0.015	0.04	Name changed
12382-001	001	TX0087475	1008_03	J & S Water Co.,LLC	0.12	0.29	Name changed
12587-001	001	TX0090905	1008_03	Monarch Utilities I LP	0.46	1.10	Name changed
12650-001	001	TX0092088	1008_03	Trinity SO GP LLC	0.025	0.06	Name changed
12851-001	001	TX0094552	1008_03	Richard Clark Enterprises, LLC	0.06	0.14	

State Permit Number	Out-fall	EPA Permit Number	Segment Number	Permittee Name	Flow MGD	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
13614-001	001	TX0108553	1008_03	Richfield Investment Corp	0.61	1.45	
13636-001	001	TX0109622	1008_03	Richfield Investment Corp	0.405	0.97	
13648-001	001	TX0042099	1008_03	Encanto Real UD	0.5	1.19	Increase discharge
13863-001	001	TX0115827	1008_03	H.H.J., Inc.	n/a	n/a	Permit expired
15003-001	001	TX0115827	1008_03	Quadvest, LP	0.8	1.91	Replaces preceding permit and changed name
14124-001	001	TX0119598	1008_03	Magnolia ISD	0.02	0.05	
14218-001	001	TX0123587	1008_03	Archdiocese of Galveston-Houston	0.015	0.04	Name changed
14347-001	001	TX0124907	1008_03	Harris County MUD #387	3.0	7.15	Added to TMDL
14491-001	001	TX0126306	1008_03	Is Zen Center	0.035	0.08	
14517-001	001	TX0125547	1008_03	South Central Water Co.	0.15	0.36	Increase discharge
14551-001	001	TX0127035	1008_03	AUC Group, LP	0.95	2.27	
14592-001	001	TX0127663	1008_03	South Central Water Co.	0.32	0.76	
14662-001	001	TX0128333	1008_03	Navasota ISD	0.024	0.06	
14717-001	001	TX0128821	1008_03	MAW Magnolia LP	0.6	1.43	Added to TMDL
14973-001	001	TX0132632	1008_03	Kenroc LLC	0.1	0.24	Added to TMDL
10908-001	001	TX0020974	1008_04	Harris County WCID #92	0.7	1.67	
11001-001	001	TX0024759	1008_04	Southern Montgomery County MUD	2.0	4.77	
11406-001	001	TX0056537	1008_04	Harris County MUD #26	1.5	3.58	
11574-001	001	TX0026221	1008_04	Spring Creek UD	0.93	2.22	
11799-001	001	TX0071528	1008_04	Harris County MUD #82	2.2	5.25	
11970-001	001	TX0076538	1008_04	Montgomery County MUD #19	0.715	1.71	
12030-001	001	TX0078263	1008_04	Rayford Road MUD	1.3	3.1	Increase discharge
12637-001	001	TX0091791	1008_04	Spring Center, Inc.	0.006	0.01	

State Permit Number	Out-fall	EPA Permit Number	Segment Number	Permittee Name	Flow MGD	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
12788-001	001	TX0095621	1008_04	Eastwood Mobile Home Park LP	n/a	n/a	Permit expired
14979-001	001	TX0095621	1008_04	Eastwood Hills Mobile Home Park LP	0.05	0.12	Replaces preceding permit and changed name
12979-004	001	TX0119181	1008_04	Northgate Crossing MUD #2	0.95	2.27	
14656-001	001	TX0128295	1008_04	Montgomery County MUD #94	1.08	2.58	
14862-001	001	TX0130095	1008_04	Rayford Crossing LTD	0.022	0.05	Added to TMDL
14964-001	001	TX0132471	1008_04	Harris County Improvement District No 18	1.185	2.83	Added to TMDL
11401-001	001	TX0054186	1008C_01	San Jacinto River Authority	7.8	18.60	
12597-001	001	TX0091715	1008C_01	San Jacinto River Authority	7.8	18.60	
12703-001	001	TX0092843	1008C_01	Magnolia ISD	0.048	0.11	
13697-001	001	TX0090000	1008C_01	Cedarstone One Investors, Inc.	0.003	0.01	
14013-001	001	TX0118028	1008C_01	Aqua Development, Inc.	0.05	0.12	Name changed
14141-001	001	TX0120073	1008C_01	Aqua Development, Inc.	0.45	1.07	
14909-001	001	TX0131652	1008C_01	Lincoln Manufacturing Inc.	0.05	0.12	Added to TMDL
14918-001	001	TX0131725	1008C_01	Woodlands DB LP	0.1	0.24	Added to TMDL
10616-002	001	TX0117595	1008H_01	City of Tomball	1.5	3.58	
10910-001	001	TX0058548	1008H_01	Northampton MUD	1.15	2.74	Increase discharge
11404-001	001	TX0026255	1008H_01	Dowdell PUD	0.95	2.27	
11630-001	001	TX0058530	1008H_01	Harris County MUD #1	1.5	3.58	
11630-002	001	TX0129330	1008H_01	Harris County MUD #1	0.33	0.79	Added to TMDL
12044-001	001	TX0078433	1008H_01	Harris County MUD #368	1.6	3.82	
12153-001	001	TX0081264	1008H_01	North Harris County MUD #19	n/a	n/a	Permit expired

State Permit Number	Out-fall	EPA Permit Number	Segment Number	Permittee Name	Flow MGD	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
14908-002	001	TX0081264	1008H_01	Northwest Harris County MUD #19	0.25	0.60	Replaces Preceding Permit
12519-001	001	TX0089915	1008H_01	Aqua Utilities, Inc.	0.1	0.24	Name changed
12643-001	001	TX0091987	1008H_01	Pinewood Community LP	0.1	0.24	
13487-001	001	TX0119628	1008H_01	Timbercrest Community Association	n/a	n/a	Permit expired
14912-001	001	TX0119628	1008H_01	Timbercrest Partners LLC	0.172	0.41	Replaces preceding permit, changed name, and decreased discharge
13619-001	001	TX0083976	1008H_01	Aqua Utilities, Inc.	0.04	0.10	
13942-001	001	TX0117633	1008H_01	Inline Utilities, LLC	0.25	0.60	
14181-001	001	TX0122530	1008H_01	Aqua Development, Inc.	0.225	0.54	Increase discharge
14421-001	001	TX0125687	1008H_01	Harris County MUD #401	0.6	1.43	Name changed
14475-001	001	TX0126152	1008H_01	Northwest Harris County MUD #19	n/a	n/a	Permit expired
14908-001	001	TX0126152	1008H_01	Northwest Harris County MUD #19	0.9	2.15	Replaces preceding permit
14606-001	001	TX0127795	1008H_01	Harris County MUD #480	0.24	0.57	Increase discharge and changed name
14610-001	001	TX0127850	1008H_01	501 Maple Ridge, LTD	0.64	1.53	
14776-001	001	TX0129381	1008H_01	Twan Development LLC	0.02	0.05	Added to TMDL
10310-001	001	TX0032476	1009_01	City of Waller	0.9	2.15	
13296-002	001	TX0105376	1009_01	Harris County MUD #358	2.0	4.77	
14448-001	001	TX0125938	1009_01	Harris County MUD #405	0.55	1.31	Name changed
14576-001	001	TX0127311	1009_01	Harris County MUD #434	0.2	0.48	Name changed
14797-001	001	TX0129569	1009_01	JM Texas Land Fund No. 4 LP	0.3	0.72	Added to TMDL
14799-001	001	TX0129577	1009_01	JM Texas Land Fund No. 4 LP	1.2	2.86	Added to TMDL
14828-001	001	TX0129771	1009_01	Barker Utilities GP LLC	0.05	0.12	Added to TMDL

State Permit Number	Out-fall	EPA Permit Number	Segment Number	Permittee Name	Flow MGD	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
14896-001	001	TX0129852	1009_01	Mason Westgreen LP	0.5	1.19	Added to TMDL
14936-001	001	TX0117854	1009_01	Harris County MUD #500	0.28	0.67	Added to TMDL
02608-000	001	TX0092258	1009_02	Center Point Energy Houston Electric LLC	0.02	0.05	
10962-001	001	TX0062049	1009_02	Harris County WCID #113	0.3	0.72	
11084-001	001	TX0046833	1009_02	Lake Forest Plant Advisory Council	2.76	6.58	
11267-001	001	TX0046868	1009_02	Timberlake ID	0.5	1.19	Increase discharge
11912-002	001	TX0075159	1009_02	Northwest Harris County MUD #10	1.5	3.58	
11986-001	001	TX0076791	1009_02	Tower Oak Bend WSC	0.05	0.12	
12327-001	001	TX0086011	1009_02	Cypress Hill MUD #1	0.8	1.91	
12541-001	001	TX0090182	1009_02	Chasewood Utilities, Inc	n/a	n/a	Permit expired
12877-001	001	TX0094706	1009_02	Harris County MUD #230	0.76	1.81	
13020-001	001	TX0096920	1009_02	Harris County MUD #286	0.6	1.43	
13059-001	001	TX0098434	1009_02	Kwik-Kopy Corp	0.015	0.04	
13881-001	001	TX0116009	1009_02	Harris County MUD #365	1.2	2.86	
14028-001	001	TX0117129	1009_02	Harris County MUD #371	0.25	0.60	
14030-001	001	TX0075221	1009_02	Northwest Harris County MUD #9	1.5	3.58	
14130-001	001	TX0081272	1009_02	Northwest Harris County MUD #10	n/a	n/a	Permit canceled
14172-001	001	TX0121126	1009_02	Utilities Investment Co., Inc.	0.27	0.64	Increase discharge
14209-001	001	TX0123366	1009_02	CTP Utilities Inc.	n/a	n/a	Permit canceled
14327-001	001	TX0124770	1009_02	Harris County MUD #391	0.95	2.27	
14354-001	001	TX0124974	1009_02	Harris County MUD #374	0.65	1.55	
14476-001	001	TX0126161	1009_02	Harris County MUD # 418	1.0	2.38	Increase discharge and changed name

State Permit Number	Out-fall	EPA Permit Number	Segment Number	Permittee Name	Flow MGD	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
10528-001	001	TX0026450	1009_03	Harris County FWSD # 52	0.7	1.67	
10955-001	001	TX0046710	1009_03	Harris County WCID #116	1.3	3.10	
11024-001	001	TX0021211	1009_03	Harris County WCID #119	0.995	2.37	
11081-001	001	TX0046761	1009_03	Ponderosa Joint Powers Agency	4.87	11.61	
11089-001	001	TX0046701	1009_03	Prestonwood Forest UD	0.95	2.27	Name changed
11105-001	001	TX0046639	1009_03	Bammel UD	2.0	4.77	Decrease discharge
11215-001	001	TX0046663	1009_03	Meadowhill Regional MUD	2.4	5.72	
11239-001	001	TX0055166	1009_03	CNP UD	2.5	5.96	
11314-001	001	TX0046744	1009_03	Aqua Texas, Inc.	0.4	0.95	
11366-001	001	TX0046779	1009_03	Cypress-Klein UD	0.7	1.67	
11409-001	001	TX0046817	1009_03	Kleinwood Joint Powers Board	5.0	11.92	
11410-002	001	TX0046841	1009_03	Charterwood MUD	1.65	3.93	Increase discharge
11835-001	001	TX0072150	1009_03	Bridgestone MUD	2.5	5.96	
11900-001	001	TX0074217	1009_03	Tina Lee Tilles	0.0017	0.004	Increase discharge and name changed
11925-001	001	TX0074632	1009_03	Harris County MUD #104	0.6	1.43	
11941-001	001	TX0074322	1009_03	Harris County MUD #58	0.6	1.43	
11964-001	001	TX0076481	1009_03	Harris County WCID #110	1.0	2.38	
11988-001	001	TX0076856	1009_03	Harris County MUD #24	2.0	4.77	
11988-002	001	TX0113123	1009_03	Harris County MUD #24	0.06	0.14	
11988-003	001	TX0113115	1009_03	Harris County MUD #24	0.06	0.14	
12248-001	001	TX0084760	1009_03	UA Holdings 1994-5	0.1	0.24	
12730-001	001	TX0090344	1009_03	Champ's Water Co.	0.0154	0.04	
13569-001	001	TX0078930	1009_03	The Middlesteadt Shopping Center LP	0.0015	0.004	Name changed

State Permit Number	Out-fall	EPA Permit Number	Segment Number	Permittee Name	Flow MGD	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
13573-001	001	TX0108120	1009_03	Northwest Harris County MUD #36	0.5	1.19	Increase discharge
13625-001	001	TX0081337	1009_03	Northwest Harris County MUD #20	1.7	4.05	Increase discharge
13875-002	001	TX0115983	1009_03	Harris County MUD #383	1.5	3.58	
13893-001	001	TX0122211	1009_03	Dia-Den LTD	0.018	0.04	
13942-002	001	TX0125466	1009_03	Inline Utilities, LLC	0.099	0.24	
13963-001	001	TX0087424	1009_03	Luther's Bar-B-Q, Inc.	n/a	n/a	Permit canceled
14044-001	001	TX0092894	1009_03	149 Enterprises, Inc.	n/a	n/a	Permit expired
14923-001	001	TX0092894	1009_03	Huffsmith-Kohrville Inc.	0.01	0.02	Replaces preceding permit
14193-001	001	TX0122963	1009_03	Kennard Tom Foley	0.035	0.08	
14390-001	001	TX0125181	1009_03	Huffsmith-Kohrville, Inc.	n/a	n/a	Permit canceled
10783-001	001	TX0023612	1009_04	Inverness Forest ID	0.5	1.19	
11044-001	001	TX0046671	1009_04	Memorial Hills UD	0.5	1.19	
11141-001	001	TX0046728	1009_04	Treschwig Joint Powers Board	2.0	4.77	
11142-002	001	TX0046680	1009_04	Timber Lane UD	2.62	6.25	
11444-001	001	TX0046736	1009_04	Harris County WCID #99	0.225	0.54	
11572-001	001	TX0047775	1009_04	Northland Joint Venture	0.06	0.14	Name changed
11618-003	001	TX0118371	1009_04	Hunter's Glen MUD	1.4	3.34	
11855-001	001	TX0072567	1009_04	North Park PUD	1.31	3.12	
11886-001	001	TX0073105	1009_04	CNL Income Splashtown LLC	0.06	0.14	Name changed
11933-001	001	TX0075671	1009_04	Woodcreek MUD	0.95	2.27	Increase discharge
12239-001	001	TX0084085	1009_04	Harris County MUD #36	0.99	2.36	
12378-002	001	TX0092967	1009_04	Richey Rd MUD	0.45	1.07	
12470-001	001	TX0089184	1009_04	Harris County MUD #221	1.8	4.29	

State Permit Number	Out-fall	EPA Permit Number	Segment Number	Permittee Name	Flow MGD	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
12579-001	001	TX0090824	1009_04	Spring West MUD	0.762	1.82	
12614-001	001	TX0091481	1009_04	Harris County UD #16	0.5	1.19	Name changed
12812-001	001	TX0093939	1009_04	Regency 1-45/ Spring Cypress Retail, LP	n/a	n/a	Permit canceled
13027-001	001	TX0096865	1009_04	Harris County	0.01	0.02	
13054-001	001	TX0097209	1009_04	CW-MHP Ltd	n/a	n/a	Permit expired
14886-001	001	TX0097209	1009_04	CW-MHP Ltd	0.01	0.02	Replaces preceding permit
13711-001	001	TX0085910	1009_04	Spring Cypress WSC	0.035	0.08	
13765-001	001	TX0116068	1009_04	Harris County MUD #249	0.8	1.91	
13819-001	001	TX0113930	1009_04	Arthur Edward Bayer	0.06	0.14	
14106-001	001	TX0119270	1009_04	Aqua Development, Inc.	0.08	0.19	
14526-001	001	TX0031305	1009_04	Spring ISD	0.03	0.07	
14870-001	001	TX0128660	1009_04	301 Lone Oak Partners LTD	0.252	0.6	Added to TMDL
14924-001	001	TX0131741	1009_04	South Central Water Co.	0.32	0.76	Added to TMDL
11824-002	001	TX0128210	1009C_01	Northwest Harris County MUD #5	0.4	0.95	
11832-001	001	TX0072354	1009C_01	Faulkey Gully MUD	1.42	3.39	
11939-001	001	TX0075795	1009C_01	Northwest Harris County MUD #15	3.12	7.44	Name changed
12600-001	001	TX0091171	1009C_01	Elite Computer Consultants, LP	0.008	0.02	
12025-002	001	TX0077941	1009D_01	Bilma PUD	0.75	1.79	
12224-001	001	TX0083801	1009D_01	Klein ISD	0.011	0.03	
13152-001	001	TX0098647	1009D_01	Northwest Harris County MUD #32	0.683	1.63	Increase discharge
11814-001	001	TX0071609	1009E_01	Boys and Girls Country of Houston, Inc.	0.1	0.24	Name changed
11824-001	001	TX0072346	1009E_01	Northwest Harris County MUD #5	n/a	n/a	Permit expired
11824-003	001	TX0072346	1009E_01	Northwest Harris County MUD #5	0.8	1.91	Replaces preceding permit

State Permit Number	Out-fall	EPA Permit Number	Segment Number	Permittee Name	Flow MGD	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
11887-001	001	TX0073393	1009E_01	Grant Road PUD	0.31	0.74	
11913-001	001	TX0075183	1009E_01	Northwest Freeway MUD	0.45	1.07	
13472-001	001	TX0090841	1009E_01	Millenium Rail Inc	0.006	0.01	Name changed
13753-001	001	TX0113107	1009E_01	Harris County MUD #360	0.8	1.91	
14032-001	001	TX0117161	1009E_01	Aqua Development, Inc.	0.4	0.95	Added to TMDL
14434-001	001	TX0125806	1009E_01	Westside Water, LLC	0.24	0.57	Increase discharge
14441-001	001	TX0125881	1009E_01	Harris County MUD #389	0.3	0.72	
14643-001	001	TX0128180	1009E_01	Northwest Harris County MUD #10	0.0945	0.23	
14675-001	001	TX0128457	1009E_01	Quadvest, LP	0.32	0.76	
11020-001	001	TX0056685	1010_02	City of New Waverly	0.088	0.21	
11020-002	001	TX0087831	1010_02	City of New Waverly	0.1	0.24	Added to TMDL
11715-001	001	TX0068659	1010_02	Texas National MUD	0.075	0.18	Name changed
12670-001	001	TX0092517	1010_02	Ranch Utilities, LP	0.175	0.42	Name changed
12204-001	001	TX0083216	1010_03	Conroe ISD	0.02	0.05	
14597-001	001	TX0127710	1010_04	The Signorelli Co.	0.6	1.43	
12205-001	001	TX0083208	1010_04	Conroe ISD	0.015	0.04	
12274-001	001	TX0084638	1010_04	New Caney MUD	2.0	4.77	Increase discharge
12621-001	001	TX0091677	1010_04	Martin Realty & Land, Inc.	0.15	0.36	
13690-001	001	TX0111473	1010_04	Conroe ISD	0.1	0.24	
14029-001	001	TX0117145	1010_04	Quadvest, LP	0.6	1.43	Name changed
14081-001	001	TX0118311	1010_04	Martin Realty & Land, Inc.	0.45	1.07	Increase discharge
14083-001	001	TX0118818	1010_04	White Oak Developers, Inc.	0.75	1.79	Increase discharge
14116-001	001	TX0071412	1010_04	Montgomery County MUD # 24	0.4	0.95	Added to TMDL
14285-001	001	TX0124281	1010_04	C & R Water Supply, Inc.	0.3	0.72	

State Permit Number	Out-fall	EPA Permit Number	Segment Number	Permittee Name	Flow MGD	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
14379-001	001	TX0125300	1010_04	East Montgomery County MUD #3	0.08	0.19	
14559-001	001	TX0127094	1010_04	Whitestone Houston Land, Ltd.	0.9	2.15	
14694-001	001	TX0128651	1010_04	Elan Development, LP	n/a	n/a	Permit withdrawn
11143-001	001	TX0082511	1011_01	Splendora ISD	0.04	0.10	
11143-002	001	TX0117463	1011_01	Splendora ISD	0.04	0.10	
13389-001	001	TX0102512	1011_01	City of Splendora	0.3	0.72	
11386-001	001	TX0078344	1011_02	Montgomery County MUD #16	0.177	0.42	
11993-001	001	TX0077241	1011_02	City of Woodbranch Village	0.133	0.32	
13638-001	001	TX0093220	1011_02	Roman Forest Consolidated MUD	0.322	0.77	
14311-001	001	TX0124583	1011_02	East Montgomery County MUD #4	0.75	1.79	
14536-001	001	TX0126853	1011_02	Flying J Inc.	0.05	0.12	
14560-001	001	TX0127108	1011_02	Whitestone Houston Land, Ltd.	0.9	2.15	
14926-001	001	TX0131636	1011_02	City of Patton Village	0.35	0.83	Added to TMDL

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

Assessment Unit	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)
1004E_02	16626	Stewarts Creek	44.9	0	0	42.6	2.24	0
1008_02	11314	Spring Creek	287	3.39	31.4	235	14.4	3.19
1008_03	11313	Spring Creek	1420	91.6	141	1050	70.9	64.1
1008_04	11312	Spring Creek	1510	122	146	1090	75.7	82.2
1008H_01	11185	Willow Creek	166	14.7	14.9	104	8.28	23.6
1009_01	11333	Cypress Creek	227	14.3	59.9	138	11.4	3.08
1009_02	11331	Cypress Creek	615	66.5	141	325	30.8	52.0
1009_03	11328	Cypress Creek	1340	152	299	690	67.0	131
1009_04	11324	Cypress Creek	1550	189	338	779	77.4	165
1009C_01	17496	Faulkey Gully	35.3	11.8	4.42	8.00	1.76	9.31
1009D_01	17481	Spring Gully	20.5	3.44	4.09	8.13	1.02	3.81
1009E_01	14159	Little Cypress Creek	91.1	9.11	5.16	59.4	4.56	12.9
1010_02	14241	Caney Creek	245	1.04	14.8	216	12.3	0.901
1010_04	11334	Caney Creek	493	16.2	28.2	413	24.7	10.8
1011_02	17746	Peach Creek	422	7.30	0	383	21.1	10.1

Appendix V. Four Total Maximum Daily Loads for Indicator Bacteria in Sims Bayou Above Tidal and Tributary For Segment Numbers 1007D and 1007N

TMDL Updates to the Water Quality Management Plan (WQMP): Sims Bayou Above Tidal and Tributary (Segments 1007D and 1007N)

The document *Four Total Maximum Daily Loads for Indicator Bacteria in Sims Bayou Above Tidal and Tributary For Segment Numbers 1007D and 1007N* 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). A previous WQMP update made corrections and changes to the original Waste Load Allocations (WLAs) for bacteria in the watershed.

The TMDL document included individual WLAs for bacteria for entities within the Sims Bayou watershed. The purpose of this update is to make the following changes to the TMDL:

- Adjust the individual WLA for a permit being amended to increase its discharge. (Table 1)
- Remove the individual WLA for a permit that was included in the original TMDL but has since been canceled. (Table 2)

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 (AFG) in all four assessment units (AUs), as is reflected in Table 17 of the TMDL, and presented in Table 3 here.

Additionally, the large increase in permitted discharge in AU 1007D_01 required the redistribution of some of the allocation for the AFG from AU 1007D_02 (which is immediately downstream of 1007D_01) into 1007D_01. This is consistent with the watershed-wide approach taken in this TMDL. This increased the overall TMDL allocation and the margin of safety for 1007D_01 as well.

In Table 18 of the TMDL, the WLAs for permitted facilities are the sum of the individual WLAs and the allowance for future growth within each assessment unit. The TMDL equation for 1007D_01 (Table 4) was adjusted to match the changes made in Table 3. The overall numbers for the other AUs did not change.

Table 1 - Waste Load Allocations Amendment to Increase Discharge (Table 15, p. 33 in original TMDL document)

State Permit Number	Outfall	EPA Permit Number	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
10086-002	001	TX0099511	1007D_01	Fort Bend County WCID No 2	4.0	9.54	Increase discharge

Table 2 - Waste Load Allocations for Permitted Facilities – To Be Removed (Table 15, p. 33 in original TMDL document)

State Permit Number	Outfall	EPA Permit Number	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) - <i>E. coli</i> in Billion MPN/day	TMDL Comments
13968-001	001	TX0117862	1007N_01	Reed Parque WWTF	N/A	N/A	Permit canceled

Table 3 - *E. coli* TMDL Summary Calculations for Sims Bayou Assessment Units (Table 17, p. 37 in original TMDL document)

Assessment Unit	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)
1007D_01	11135	Sims Bayou Above Tidal	222	31.4	174	0	11.1	5.5
1007D_02	11133	Sims Bayou Above Tidal	527	98.2	358	10.2	26.3	34.3
1007D_03	11132	Sims Bayou Above Tidal	777	115	569	17.5	38.9	36.6
1007N_01	16655	Unnamed Non-Tidal Tributary of Sims Bayou	25.5	0	23.9	0	1.28	0.358

Table 4 – Final TMDL Allocations (Only equation that changed is included; Table 18, p. 38 in original TMDL document)

Assessment Unit	TMDL (Billion MPN/day)	WLA _{WWTF} (Billion MPN/day)	WLA _{StormWater} (Billion MPN/day)	LA (Billion MPN/day)	MOS (Billion MPN/day)
1007D_01	222	36.9	174	0	11.1

Appendix VI. One Total Maximum Daily Load for Bacteria in Upper Oyster Creek for Segment Number 1245

TMDL Updates to the Water Quality Management Plan (WQMP): Bacteria in Upper Oyster Creek (Segment 1245)

The document *One Total Maximum Daily Load for Bacteria in Upper Oyster Creek for Segment Number 1245* was adopted by the TCEQ on 08/08/07 and approved by EPA on 09/28/07, and became an update to the state's Water Quality Management Plan.

The purpose of this update is to make the following change to the TMDL:

- Adjust the individual waste load allocation (WLA) for an increase in permitted discharge for one facility in Allocation Reach 2 (the upper portion) of Upper Oyster Creek (Table 1)

Note that this TMDL was written for *E. coli* and that it used the single sample criterion of 394 cfu/100 mL.

Table 1 - Permitted Bacteria Allocation for Amended Discharge (PP. 35-37 in original TMDL document)

State Permit Number	EPA Permit Number	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA)	TMDL/ Comments
14745-001	TX0129119	1245	Fort Bend County MUD # 169 (formerly TMI, Inc.)	1.0	1.49 x 10 ¹⁰ cfu <i>E. coli</i> per day	Increase discharge

The addition of this new facility to Allocation Reach 2 also changes the TMDL equation for the reach, given in Table 11 of the TMDL document. Note that other changes have already taken place that affected this equation, which have been outlined in previous WQMP Updates. The WLA Continuous for Allocation Reach 2 will now be 1.49 x 10¹¹ cfu *E. coli* per day.

The Allowable Loading for Allocation Reach 2 will also have to increase to allow for the increased flow (and therefore increased allowable *E. coli* concentration) in Upper Oyster Creek as a result of this new discharge. As established on pages 32 and 33 and in Table 9 of the TMDL document, this "additional loading" is determined by calculating the "...difference between loadings if WWTFs operated at their full allowable daily discharges and the loadings that would be allowable under the average WWTF discharges reported..." The actual average discharge data related to this increase in discharge are not available; therefore, it is not possible to calculate this additional loading at this time. However, as long as all new/increased discharges have *E. coli* concentrations at or below the criterion, they will result in a neutral impact on Segment 1245 by increasing stream flow while adding bacteria at concentrations meeting protective criteria, as explained in the Future Growth section of the TMDL document on page 37.

This memo serves to provide the updated information that should be put in the next quarterly Water Quality Management Plan Update that is subject to public review, TCEQ approval, and EPA approval.

Appendix VII. Two Total Maximum Daily Loads for Dissolved Oxygen in Upper Oyster Creek: Segment 1245

TMDL Updates to the Water Quality Management Plan (WQMP): Dissolved Oxygen in Upper Oyster Creek (Segment 1245)

The document *Two Total Maximum Daily Loads for Dissolved Oxygen in Upper Oyster Creek: Segment 1245* was adopted by the TCEQ on 7/28/10 and approved by EPA on 09/21/10, and became an update to the state's Water Quality Management Plan (WQMP).

The purpose of this update is to make the following changes to the TMDL:

- Provide new waste load allocations (WLA) for two new facilities and one facility with an amended permit to increase its discharge (Table 1)
- List the permit limits for the facilities (Table 2)
- Update the TMDL summary equations for carbonaceous biochemical oxygen demand (CBOD₅; Table 3) and ammonia nitrogen (NH₃-N; Table 4)

The allocations presented in this update were calculated using the QUAL2K model used in establishing the original TMDL.

Table 1 - WLA for Upper Reach 1245_03 by Individual WWTF (Table 9, p. 29 in original TMDL document)

Facility	TCEQ Permit No. / EPA Permit No.	Final Permitted Discharge (MGD)	Allowable CBOD ₅ Loading (kg/d) (lb/d)	Allowable NH ₃ -N Loading (kg/d) (lb/d)	Comments
Fort Bend County MUD #25	12003-002 TX0132217	0.5	2.46 5.42	0.09 0.21	Permit added
Fort Bend County MUD # 169 (formerly TMI, Inc.)	14745-001 TX0129119	1.0	4.92 10.84	0.19 0.42	Increase discharge
Fort Bend County MUD #134	14917-001 TX0131717	0.95	4.67 10.30	0.18 0.40	Permit added

All three of these facilities include a polishing pond system. The WLA for each facility with a polishing pond system was based on analyses by TCEQ. The WLAs in Table 1 represent the loadings leaving the polishing pond system, not the allowable permitted loading for each facility. The relevant permit limits for each facility are as follows:

Table 2 – Permitted Loadings for Individual WWTFs (Corresponds to Table 3, p. 13 in original TMDL document)

Facility	TCEQ Permit No. / EPA Permit No.	Final Permitted Discharge (MGD)	CBOD ₅ (mg/L)	NH ₃ -N (mg/L)	Dissolved Oxygen (mg/L)
Fort Bend County MUD #25	12003-002 TX0132217	0.5	5	2	4
Fort Bend County MUD # 169 (formerly TMI, Inc.)	14745-001 TX0129119	1.0	10	3	6
Fort Bend County MUD #134	14917-001 TX0131717	0.95	5	2	6

Table 3 - Summary of TMDLs for Upper Reach CBOD₅ (Table 13, p. 36 in original TMDL document)

Source Category	Existing (Full Permitted) Loading (kg/d)	Allowable Loading (kg/d)	Percent Reduction (%)
1245_03:			
Waste Load Allocation	110.17	110.17	0
Load Allocation	96.00	96.00	0
Total Loading	206.17	206.17	0

Table 4 - Summary of TMDLs for Upper Reach NH₃-N (Table 14, p. 37 in original TMDL document)

Source Category	Existing (Full Permitted) Loading (kg/d)	Allowable Loading (kg/d)	Percent Reduction (%)
1245_03:			
Waste Load Allocation	23.14	23.14	0
Load Allocation	3.69	3.69	0
Total Loading	26.83	26.83	0