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October 2014 Update to the Texas Water Quality Management Plan

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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

October 2014 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), 208,
and 303 of the Federal Clean Water Act
and applicable regulations thereto.

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Introduction

The Texas Water Quality Management Plan (WQMP) is the product of a wastewater treatment facility 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 on behalf of the Governor of Texas, 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 October 2014 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

[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, and 07/2014.

The Projected Effluent Limit Update section provides information compiled from August 1, 2014 through October 31, 2014, 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 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, $CBOD_5$ – 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
10913-001	1401	TX0054038	Matagorda Waste Disposal and WSC Matagorda	0.17					20	28.36	2	
12841-001	1014	TX0097373	Rolling Creek UD Harris	0.75	10	62.55	2	12.51			6	
13735-001	2432	TX0118001	Rancho La Fuente, L.L.C. Brazoria	0.075	10	6.26	3	1.88			4	
14527-001	1016	TX0126756	Harris County MUD No. 412 Harris	1.075	10	89.66	3	26.90			4	
14675-001	1009	TX0128457	Quadvest L.P. Harris	0.90	7	52.54	2	15.01			6	
15238-001	1250	TX0135291	Leander MUD No. 3 Williamson	0.90	5	37.53	2	15.01			4	
15264-001	1014	TX0135461	Nash FM 529 L.L.C. Harris	1.0	10	83.40	2	16.68			6	
15266-001	1808	TX0135488	SouthStar at Havenwood, L.L.C. Comal	0.01493					20	2.49	2	
15267-001	0507	TX0135496	Caddo Basin SUD Hunt	0.10	10	8.34	3	2.50			4	
15274-001	1245	TX0135534	AMDT, L.L.C. Fort Bend	0.02	10	1.67	3	0.50			5	Upper Oyster Creek TMDL
15283-001	1015	TX0135658	Bluejack Development Co., L.L.C. Montgomery	0.20	10	16.68	3	5.00			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
15284-001	1008	TX0135666	South Central Water Co. Harris	0.60	10	50.04	3	15.01			4	
15288-001	1004	TX0135682	Montgomery County MUD No. 96 Montgomery	0.40	10	33.36	3	10.01			6	
15292-001	1014	TX0135704	Marcello Lakes, Ltd. Harris	0.60	5	25.02	1.8	9.01			6	
15293-001	1808	TX0135721	DMS Real Tree L.L.C. Hays	0.54	5	22.52	2	9.01			4	
15295-001	1202	TX0135747	Dry Creek (Houston) ASLI VII, L.L.C. Fort Bend	0.50	5	20.85	1.4	5.84			6	
15298-001	1010	TX0135780	Crystal Springs Water Co., Inc. Montgomery	0.049	7	2.86	2	0.82			6	
15306-001	1211	TX0135844	South Central Water Co. Burleson	0.30	7	17.51	2	5.00			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.

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
Angelina & Neches River Authority	Angelina & Neches River Authority	T/C	2015	Neches River	0615	Angelina	8/6/2014	Improvements to divert flow from the Redland Estates Subdivision and from Angelina County FWSD. Replaces the Redland Estates Subdivision collection system.	2010	573
									2020	647
									2030	733
									2040	837
City of Early	City of Early	T/C	2015	Colorado River	1402	Brown	9/9/2014	Construct a new WWTP with a facultative lagoon, stabilization pond, irrigation holding pond and effluent irrigation center pivots.	2010	2,762
									2020	2,882
									2030	2,952
									2040	2,952
City of El Campo	City of El Campo	T/C	2015	Colorado-Lavaca Coastal	1502	Wharton	10/1/2014	Improvements to the treatment capabilities of the existing El Campo WWTP.	2010	11,575
									2020	12,111
									2030	12,677
									2040	13,129
City of Hutto	Hutto South Wastewater Treatment Plant (WWTP)	T/C	2015	Brazos River	1244	Williamson	8/1/2014	Construction of 2 MGD WWTP. Includes headworks, sequencing batch reactors, UV disinfection and solids handling facilities.	2010	6,059
									2020	15,513
									2030	22,405
									2040	25,748
City of Port Arthur	City of Port Arthur	T/C	2015	Neches-Trinity Coastal	0703	Jefferson	8/6/2014	New WWTP to replace the existing main WWTP.	2010	57,755
									2020	57,755
									2030	57,755
									2040	57,755
City of Wichita Falls	City of Wichita Falls	T/C	2015	Red River	0212	Wichita	8/12/2014	Improvements at the Wichita Falls River Road WWTP, construction of a 15-mile pipeline from the WWTP south to Lake Arrowhead and installation of new outfall 002 on the lake bottom.	2010	109,663
									2020	114,576
									2030	117,825
									2040	119,525

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 Early	City of Early	T/C	3/11/2014
City of Hutto	Hutto South WWTP	T/C	5/15/2014

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 EPA 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. Also 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.

<u>Appendix I.</u> 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 Water Quality Management Plan (WQMP). Eleven subsequent WQMP updates prior to this one have updated the list of individual waste load allocations (WLAs) found in the original TMDL document. Additionally, an addendum to the original TMDL was submitted through the April 2013 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, and
- update the WLA for a 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 (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 assessment unit. Therefore, these overall numbers did not change, and Table 54 of the TMDL remains the same.

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

State Permit Number	Outfall	EPA Permit Number	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) - *E. coli* in Billion MPN/day	TMDL Comments
12841-001	001	TX0094307	1014A_01	ROLLING CREEK UTILITY DISTRICT	0.75	1.789	Increased discharge
15264-001	001	TX0135461	1014H_02	NASH FM 529 LLC	1.0	2.385	New Permit
15292-001	001	TX0135704	1014H_02	MARCELLO LAKES, LTD.	0.6	1.431	New Permit

Table 2 - *E. coli* TMDL Summary Calculation (Updates Table 53, pp. 118-119 in the TMDL document.)

Assess-sess-ment Unit	TMDL (Billion MPN/day)	WLA_{WWTF} (Billion MPN/day)	$WLA_{StormWater}$ (Billion MPN/day)	LA (Billion MPN/day)	MOS (Billion MPN/day)	Upstream Load (Billion MPN/day)	Future Growth (Billion MPN/day)
1014A_01	195.04	28.05	141.2	15.69	0	0	10.10
1014H_02	175.43	33.69	125.93	13.99	0	0	1.82

Appendix II. Eight Total Maximum Daily Loads for Indicator Bacteria in Greens Bayou Above Tidal and Tributaries For Segment Numbers 1016, 1016A, 1016B, 1016C, and 1016D

TMDL Updates to the WQMP: Eight Total Maximum Daily Loads for Indicator Bacteria in Greens Bayou Above Tidal and Tributaries (Segments 1016, 1016A, 1016B, 1016C, and 1016D)

The document *Eight Total Maximum Daily Loads for Indicator Bacteria in Greens Bayou Above Tidal and Tributaries: Segments 1016, 1016A, 1016B, 1016C, and 1016D* was adopted by the TCEQ on 06/02/10 and approved by EPA on 08/12/10, 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 Waste Load 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 a facility that has increased its permitted discharge, and
- remove a canceled 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 (AFG) in three assessment units (AUs). This was originally presented in Table 17 in the TMDL document, and the three affected AUs are included here as Table 2.

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. Therefore, these overall numbers did not change, and Table 18 of the TMDL remains the same.

Table 1 – Change to Individual Waste Load Allocation (Updates Table 15, pp. 39-42 in the TMDL document.)

State Permit Number	Outfall	EPA Permit Number	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – *E. coli* in Billion MPN/day	TMDL Comments
14527-001	001	TX0126756	1016A_03	HARRIS COUNTY MUD NO. 412	1.075	2.564	Increased discharge
12320-001	001	TX0085901	1016_02	WHOLESALE ROOFING SUPPLY HOUSTON INC	N/A	N/A	Permit canceled; was called "Component Structures" in previous TMDL documents

Table 2 - *E. coli* TMDL Summary Calculations For Greens Bayou Assessment Units (Updates Table 17, p. 46 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)
1016_02	11371	Greens Bayou Above Tidal	1,020	106.7	789	0	51.2	73.1
1016_03	11369	Greens Bayou Above Tidal	1,780	195	1,050	231	89.0	215
1016A_03	11125	Garners Bayou	419	58.4	214	31.0	21.0	94.6

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. It has had three subsequent WQMP updates prior to this one that provided individual Waste Load Allocations (WLAs) for permitted facilities.

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

- replace an expired permit with a new permit, and
- remove two 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 two assessment units, as is reflected in Table 18 of the TMDL, and presented in Table 3 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 Amended 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) – *E. coli* in Billion MPN/day	TMDL Comments
14921-002	001	TX0135364	1006D_02	HOA KHUONG BUI AND CHUONG ANH NGUYEN	N/A	N/A	Replaced expired permit 14921-001 (TX0107158); no change to discharge; updated name
14156-001	001	TX0122190	1006D_02	REX-TEMPLE INC.	N/A	N/A	Permit expired
13211-001	001	TX0099104	1006D_02	HARRIS COUNTY MUD 321	N/A	N/A	Permit expired

Table 3 - *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 Growth (Billion MPN/ day)
1006D_01	20023	Halls Bayou below US 59	463	44.6	382	3.4	23.2	9.8
1006D_02	11126	Halls Bayou above US 59	280	27.5	233	0	14	5.5

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). Eleven subsequent WQMP updates prior to this one have updated the list of individual waste load allocations (WLAs) found in the original TMDL document. Additionally, an addendum to the original TMDL was submitted through the October 2013 WQMP update. This addendum added six 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:

- update the WLA for a facility that has increased its permitted discharge,
- add a new facility, and
- remove two expired 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 (AFG) in eight AUs. This was originally presented in Table 18 in the original TMDL document, and the eight affected AUs are included here as Table 2.

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 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 and Permittee Names (Updates Table 16, pp. 49-56 in the TMDL document.)

State Permit Number	Outfall	EPA Permit Number	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – *E. coli* in Billion MPN/day	TMDL Comments
15284-001	001	TX0135666	1008H_01	SOUTH CENTRAL WATER COMPANY	0.6	1.43	New discharge
14675-001	001	TX0128457	1009E_01	QUADVEST, LP	0.9	2.15	Increased discharge
13942-002	001	TX0125466	1009_03	INLINE UTILITIES, LLC	N/A	N/A	Permit expired
14926-001	001	TX0131636	1011_02	CITY OF PATTON VILLAGE	N/A	N/A	Permit expired

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)
1008_03	11313	Spring Creek	1420	93.4	141	1050	70.9	64.7
1008_04	11312	Spring Creek	1510	129.07	146	1090	75.7	69.2
1008H_01	11185	Willow Creek	166	15.54	14.9	104	8.28	23.3
1009_02	11331	Cypress Creek	615	75.61	141	325	30.8	42.6
1009_03	11328	Cypress Creek	1340	160.89	299	690	67.0	123.1
1009_04	11324	Cypress Creek	1550	199.49	338	779	77.4	156.1
1009E_01	14159	Little Cypress Creek	91.1	11.37	5.16	59.4	4.56	10.6
1011_02	17746	Peach Creek	422	16.15	0	383	21.1	1.8

Appendix V. Three Total Maximum Daily Loads for Bacteria in the San Antonio Area, For Segments 1910 - Salado Creek, 1910A - Walzem Creek, and 1911 - Upper San Antonio River

TMDL Updates to the Water Quality Management Plan (WQMP): Salado Creek (Segment 1910), Walzem Creek (Segment 1910A), and Upper San Antonio River (Segment 1911)

The document *Three Total Maximum Daily Loads for Bacteria in the San Antonio Area, For Segment Numbers: 1910 – Salado Creek, 1910A – Walzem Creek, and 1911 – Upper San Antonio River* was adopted by the TCEQ on 07/25/07 and approved by EPA on 09/25/07, and became an update to the state's Water Quality Management Plan (WQMP). Two subsequent WQMP updates prior to this one have updated the list of individual waste load allocations (WLAs) found in the original TMDL document.

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

- add one new permit.

Table 1 – Changes to the Permitted Bacteria Allocations

State Permit Number / EPA Permit Number	Segment Number	Outfall	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – Fecal Coliform 10^6 org/day	Waste Load Allocation (WLA) – *E. coli* 10^6 org/ day[a]	TMDL Comments
15242-001 / TX0135313	1910	001	TIMBERWOOD DEVELOPMENT COMPANY, L.P.	0.0156	59.0	37.2	New Permit

[a] The criteria ratio of 0.63 (126/200 = 0.63) was applied to convert fecal coliform to *E. coli*.

Tables 2 and 3 provide the updated TMDL equation for the affected segment. The original TMDL used fecal coliform as the primary indicator, along with a procedure for converting fecal coliform to *E. coli*. The criteria ratio of 0.63 (126/200 = 0.63) was applied to convert fecal coliform to *E. coli*. Because this TMDL was developed without a specific allocation for future growth, a small amount was moved from the Load Allocation (LA) term to the WLA term to accommodate the new facility and maintain the overall TMDL allocation.

Table 2 - Summary of Fecal Coliform TMDL for Impaired Reach (10^6 org/day)

Segment #	Segment Name	WLA	WLA-MS4	LA	MOS	TMDL
1910	Salado Creek	11,414	4,731,088	30,642	239,286	5,012,430

Table 3 - Summary of *E. coli* TMDL for Impaired Reach (10^6 org/day)

Segment #	Segment Name	WLA	WLA-MS4	LA	MOS	TMDL
1910	Salado Creek	7,191	2,980,585	19,304	150,750	3,157,831

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 (WQMP). Eight subsequent WQMP updates prior to this one have provided individual Waste Load Allocations (WLAs) for permitted facilities.

The purpose of this WQMP update is to make the following change to the TMDL (Table 1):

- add a new permit.

Table 1 –Permitted Bacteria Allocation for Amended Discharges (pp. 35-37 in original TMDL document.)

State Permit Number	Outfall	EPA Permit Number	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA)	TMDL/ Comments
15274-001	001	TX0135534	1245	AMDT, LLC	0.02	2.98×10^8 cfu *E. coli* per day	New discharge

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

The addition of the discharge for this facility in 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 1.83×10^{11} 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.

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). It has had three subsequent WQMP updates prior to this one.

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

- provide individual waste load allocations (WLAs) for one new facility (Table 1); and;
- provide new permit limits for that facility (Table 2).

The allocations presented in this update were verified as satisfactory 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. / Outfall No.	Final Permitted Discharge (MGD)	Allowable $CBOD_5$ Loading (kg/d) | (lb/d)	Allowable NH_3-N Loading (kg/d) | (lb/d)	Comments
AMDT, LLC	WQ15274-001 TX0135534 Outfall 001	0.02	0.76 | 1.67	0.23 | 0.50	New discharge

The relevant permit limit for this facility is as follows:

Table 2 – Permitted Loadings for Individual WWTF (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)
AMDT, LLC	WQ15274-001 TX0135534 Outfall 001	0.02	10	3	5

The TMDL summary equations must also be updated for carbonaceous biochemical oxygen demand ($CBOD_5$; Table 3) and ammonia nitrogen (NH_3-N; Table 4)

Table 3 - Summary of TMDLs for Upper Reach $CBOD_5$ (Table 13, p. 36 in original TMDL document.)

Source Category	**Proposed (Full Permitted) Loading[1] (kg/d)**	**Allowable Loading[2] (kg/d)**
1245_**03:**		
Waste Load Allocation	231.53	231.53
Load Allocation	96.00	96.00
Total Loading	327.53	327.53

Table 4 - Summary of TMDLs for Upper Reach NH_3-N (Table 14, p. 37 in original TMDL document.)

Source Category	**Proposed (Full Permitted) Loading[1] (kg/d)**	**Allowable Loading[2] (kg/d)**
1245_**03:**		
Waste Load Allocation	59.75	59.75
Load Allocation	3.69	3.69
Total Loading	63.44	63.44

1 Those facilities routing wastewater through polishing ponds are included in the total, assuming quality exiting the pond(s) is 1.3 mg/L CBOD5 and 0.05 mg/L NH3-N.

2 Allowable loading is determined using the QUAL2K model developed for the TMDL and existing/proposed discharges at limits necessary to meet the relevant dissolved oxygen criteria.