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FINAL

# April 2009 Update to the Texas Water Quality Management Plan

Prepared by the:  
Office of Permitting & Registration, Water Quality Division

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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



# **April 2009 Update to the Texas Water Quality Management Plan**

Compiled and distributed by the  
Water Quality Assessment Section  
Water Quality Division  
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WQMP updates are also available on the TCEQ web site at:  
<[www.tceq.state.tx.us/nav/eq/eq\\_wqmp.html](http://www.tceq.state.tx.us/nav/eq/eq_wqmp.html)>

Developed in accordance with Sections 205(j)  
and 208 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.<sup>1</sup>

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<sup>2</sup>, 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 April 2009 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 February 1, 2009 through April 30, 2009, 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 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.

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<sup>1</sup> A formal definition for a water quality management plan is found in 40 Code of Federal Regulations (CFR) 130.2(k).

<sup>2</sup> Fiscal Years 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, and 01/2009.

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.

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.

## 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<sub>5</sub> – 5 Day Carbonaceous Biochemical Oxygen Demand, NH<sub>3</sub>-N – Ammonia-Nitrogen, BOD<sub>5</sub> – 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 <sub>5</sub> (mg/L)	CBOD <sub>5</sub> (lbs/day)	NH <sub>3</sub> -N (mg/L)	NH <sub>3</sub> -N (lbs/day)	BOD <sub>5</sub> (mg/L)	BOD <sub>5</sub> (lbs/day)	DO (mg/L)	Months/ Comments	
10353-002	1241	0106071	City of Lubbock Lubbock	9.0					10	750.60	5	Outfall 001	
				14.5 5		604.65	1.9	229.77			6	Outfall 007 Apr.-Oct.	
				14.5 10		1209.30	5	604.65			6	Outfall 007 Nov.-Mar.	
10503-002	2491	0024112	City of Edinburg Hidalgo	7.6	5	316.92	1.5	95.08			6		
10596-001	2202	0062219	City of Pharr Hidalgo	8.0	7	467.04	2	133.44			6		
10619-003	2491	0052787	City of Weslaco Hidalgo	5.5	10	458.70	3	137.61			4		
10689-001	0202	0056235	Grayson County College Grayson	0.075	10	6.26	3	1.88			4		
10795-001	2307	0086045	Horizon Regional MUD El Paso  *Total combined Flow = 3.0 MGD	0.5 10		41.70	3	12.51			4	*Outfall 001	
				1.0									*Outfall 002 Irrigation
				3.0 10		250.20	3	75.06			4	*Outfall 003	
10875-001	0601	0023795	Orange County WCID No. 1 Orange	3.0 7		175.14	2	50.04			6	Mar.-Oct.	
				3.0 7		175.14	4	100.08			6	Nov.-Feb.	
11071-001	1242	0026506	Cities of Waco, Woodway, Bell- mead, Lacy-Lakeview, Robin- son, Hewitt, and Lorena McLennan	45.0	10	3753.00	3	1125.90			6		

State Permit Number	Segment Number	EPA ID Number	Permittee Name County	Flow (MGD)	CBOD <sub>5</sub> (mg/L)	CBOD <sub>5</sub> (lbs/day)	NH <sub>3</sub> -N (mg/L)	NH <sub>3</sub> -N (lbs/day)	BOD <sub>5</sub> (mg/L)	BOD <sub>5</sub> (lbs/day)	DO (mg/L)	Months/ Comments
11235-003	0204	0027171	City of Bellevue Clay	0.033					30	8.26	4	
12010-001	1302	0077470	Needville ISD Fort Bend	0.082					10	6.84	4	
14779-001	1402	0129429	Pine Cove, Inc. Colorado	0.03					10	2.50	4	
14803-001	0818	0129623	Las Lomas MUD No. 4 of Kaufman County Kaufman	0.5	5	20.85	1	4.17			6	
14858-001	0818	0130044	Neal & FM548-1076 (Mann 1100), L.L.L.P. Kaufman	1.12	5	46.70	1	9.34			6	
14911-001	1251	0131679	3 B&J Wastewater Co., Inc. Williamson	0.95	5	39.62	2	15.85			4	
14925-001	2472	0131750	RR Development Texas II, Inc. Aransas	0.55	10	45.87	3	13.76			4	
14931-001	2425	0131806	Bay Bluff, L.P. Harris	0.05	5	2.09	2	0.83			4	
14932-001	1006	0131849	Stripes, L.L.C. Harris	0.005	10	0.42	3	0.13			4	
14936-001	1009	0117854	CW SCOA West, L.P. Harris	0.28	10	23.35	3	7.01			4	
14937-001	0704	0131881	Cross-Country Commercials, Inc. Jefferson	0.02					20	3.34	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
City of Aledo	City of Aledo	T/C	2008	Trinity River Basin / NCTCOG	0831	Parmer	2/19/2009	Expand wastewater collection system.	2005	2,392
									2010	4,110
									2020	7,940
									2030	1,769
City of Arlington	City of Arlington	T/C	2008	Trinity River Basin / NCTCOG	0841	Tarrant	2/4/2009	Rehabilitate the collection system.	2005	36,214
									2010	39,180
									2020	44,772
									2030	47,206
City of Brady	City of Brady	T/C	2008	Colorado River Basin	1416	McCulloch	4/7/2009	Rehabilitate the treatment system.	2000	5,523
									2010	5,593
									2020	5,689
									2030	5,689
City of Bryan	City of Bryan	T/C	2008	Brazos River Basin	1209	Brazos	3/23/2009	Rehabilitate the Supervisory Controlled Data Acquisition systems for wastewater treatment plants.	2007	7,096
									2010	7,627
									2020	8,739
									2030	9,702
City of De Leon	City of De Leon	T/C	2008	Brazos River Basin	1223	Comanche	2/19/2009	Replace the current system with a new wastewater system.	2000	2,433
									2010	2,476
									2020	2,554
									2030	2,578

Planning Agency	Service Area	Needs	Needs Year	Basin Name / COG	Segment	County	WQMP Date	Comments	Year	Population
City of Fort Stockton	City of Fort Stockton	T/C	2008	Rio Grande River Basin	2311	Pecos	2/18/2009	Rehabilitate the collection system.	2000 8,	546
									2010 1	0,000
									2020 1	5,300
									2030 1	6,800
City of Hutchins	City of Hutchins	C	2008	Trinity River Basin / NCTCOG	0805	Dallas	2/6/2009	Rehabilitate and expand the collection system.	2000 2,	805
									2010 5,	000
									2020 1	0,000
									2030 1	6,000
City of Oak Ridge North	City of Oak Ridge North	T/C	2008	San Jacinto River Basin / H-GAC	1008	Montgomery	3/2/2009	Rehabilitate the collection system.	2000 2,	991
									2010 3,	743
									2020 4,	202
									2025 4,	651
City of Seminole	City of Seminole	T/C	2008	Upper Colorado River Basin	1412	Gaines	2/18/2009	Upgrade and extend the collection system.	2000 5,	910
									2010 6,	605
									2020 6,	976
									2030 7,	000
Southmost Regional Water Authority	Brownsville, El Jardin, Los Fresnos, Valley MUD #2, and Indian Lake	T/C	2008	Bays and Estuaries Basin	2494	Cameron	4/1/2009	Implement arsenic and iron treatment.	2005	171,247
									2010	191,724
									2020	235,020
									2030 27	9,773

Planning Agency	Service Area	Needs	Needs Year	Basin Name / COG	Segment	County	WQMP Date	Comments	Year	Population
City of Taft	City of Taft	T/C	2008	Bays and Estuaries Basin	2472	San Patricio	3/18/2009	Replace sewer lines and install a new clarifier.	2000	396
									2010	661
									2020	947
									2030	223
Westwood Shores MUD	Trinity County	T/C	2008	Neches River Basin	0803	Trinity	4/22/2009	Renovate and expand the wastewater treatment system.	2005	402
									2010	567
									2020	648
									2030	667

## 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 Oak Ridge North	City of Oak Ridge North	T/C 09/	18/2008	Montgomery County

## **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 Update to the 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 9/10/2008 and approved by EPA on 3/6/2009, and became an update to the state's Water Quality Management Plan. Table 1 gives the individual Waste Load Allocations (WLAs) from the TMDL document.

Table 1 - Permitted Bacteria Allocations – In the TMDL Document

State Permit Number	Outfall	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – Fecal Coliform MPN/day	Waste Load Allocation (WLA) – E. coli MPN/day	Waste Load Allocation (WLA) – Enterococci MPN/day	TMDL/ Comments
11571-001	001	1101_01	Gulf Coast Waste Disposal Authority	9.25	7.00E+10	4.41E+10	1.23E+10	Updates p. 47.
10568-003	001	1101_02	City of League City	0.66	5.00E+09	3.15E+09	8.74E+08	Updates p. 47.
10520-001	001	1101_03	City of Webster	3.3	2.50E+10	1.57E+10	4.37E+09	Updates p. 47.
10526-001	001	1101_03	City of Nassau Bay	1.33	1.01E+10	6.34E+09	1.76E+09	Updates p. 47.
10526-001	002	1101_03	City of Nassau Bay	1.33a	0b	0b	0b	Updates p. 47.
10568-005	001	1101_03	City of League City	12	9.08E+10	5.72E+10	1.59E+10	Updates p. 47.
10134-008 001		1102_01	City of Pearland	2.0	1.51E+10	9.54E+09	N/A	Updates p. 47.
13864-001 001		1102_01	Fresno Manufacturing L.L.C.	0.0084	6.36E+07	4.01E+07	N/A	Updates p. 47.
12939-001 001		1102_02	Harris County WCID 89	0.95	7.19E+09	4.53E+09	N/A	Updates p. 47.
10134-002	001	1102_03	City of Pearland	3.1 2.	35E+10c	1.48E+10c	N/A	Updates p. 47.
10134-010	001	1102_03	City of Pearland	4.5 3.	41E+10c	2.15E+10c	N/A	Updates p. 47.
10134-010	002	1102_03	City of Pearland	2.0	1.51E+10	9.54E+09	N/A	Updates p. 47.
12295-001	001	1102_03	City of Pearland	0.95	7.19E+09	4.53E+09	N/A	Updates p. 47.
12822-001 001		1102A_01	Walker Water Works Inc.	0.035	2.65E+08	1.67E+08	N/A	Updates p. 47.
13865-001 001		1102A_01	Forestaire Estates	0.049	3.71E+08	2.34E+08	N/A	Updates p. 47.
10134-007 001		1102B_01	City of Pearland	6.0	4.54E+10	2.86E+09c	N/A	Updates p. 47.
12332-001 001		1102B_01	Brazoria County MUD No. 1	2.4	1.82E+10	1.14E+10	N/A	Updates p. 47.

State Permit Number	Outfall	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – Fecal Coliform MPN/day	Waste Load Allocation (WLA) – E. coli MPN/day	Waste Load Allocation (WLA) – Enterococci MPN/day	TMDL/ Comments
12680-001	001	1102B_01	H & R Realty Investments L.L.C.	0.012	9.08E+07	5.72E+07	N/A	Updates p. 47.
12849-001	001	1102C_01	CMH Parks Inc.	0.075	5.68E+08	3.58E+08	N/A	Updates p. 47.
10495-075	001	1102D_01	City of Houston	6.14	4.65E+10	2.93E+10	N/A	Updates p 47.
10495-079	001	1102E_01	City of Houston	5.33	4.03E+10	2.54E+10	N/A	Updates p. 47.

<sup>a</sup> The total of both outfalls combined cannot exceed 1.33 MGD

<sup>b</sup> Total allocated load included in outfall 001 (previous row)

<sup>c</sup> These allocations have changed. See Table 2.

The TMDL program was notified that there have been changes to two permitted dischargers from what was listed in the original TMDL document (Table 16, p. 47). Additionally, one individual waste load allocation (WLA) for *E. coli* (10134-007) was incorrect, but this mistake was not perpetuated through the final TMDL calculations in Tables 18 and 21 of the TMDL document. Table 2 provides these updates.

Table 2. - Permitted Bacteria Allocations - Updates

State Permit Number	Outfall	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – Fecal Coliform MPN/day	Waste Load Allocation (WLA) – E. coli MPN/day	Waste Load Allocation (WLA) – Enterococci MPN/day	TMDL/ Comments
10134-002	001	1102	City of Pearland	4.5	3.41E+10	2.15E+10	N/A	Updates p. 47.
10134-010	001	1102	City of Pearland	2.5	1.89E+10	1.19E+10	N/A	Updates p. 47.
10134-007	001	1102B	City of Pearland	6.0	4.54E+10	2.86E+10	N/A	Updates p. 47.

The changes included in Table 2 also change the TMDL equation for Segment 1102, given in Table 18 of the TMDL document (p. 50). This table is updated in part in Table 3 below.

Table 3. - TMDL Calculations – *E. coli* (counts/day) – Corresponds to Table 18, p. 50

Segment	Sampling Location	Stream Name	Indicator Bacteria	TMDL (counts/day)	WLA <sub>WWTF</sub> (counts/day)	WLA <sub>StormWater</sub> (counts/day)	LA (counts/day)	MOS (counts/day)	Future Growth (counts/day)
1102 1422	9	Clear Creek Above Tidal	E. coli	1.32E+11	6.16E+10	5.35E+09	2.49E+09	6.59E+09	5.60E+10

The changes included in the preceding tables also change the TMDL equations for the individual assessment units for Segment 1102, given in Table 21 of the TMDL document (p. 53). Additionally, the TMDL equations for the individual assessment units for Segment 1101 were calculated incorrectly, and are corrected here. This table is updated in part in Table 4 below.

Table 4 - TMDL Calculations – *E. coli* (counts/day) – Corresponds to Table 21, p. 53

Segment	Stream Name	Assessment Unit	Indicator Bacteria	TMDL (counts/day)	WLA <sub>WWTF</sub> (counts/day)	WLA <sub>StormWater</sub> (counts/day)	LA (counts/day)	MOS (counts/day)	Future Growth (counts/day)
1101 Clear Creek Tidal		1101_01	ENT	49E+12	1.23E+10	1.30E+12	78E+10	7.45E+10	5.44E+09
		1101_02		69E+12	8.74E+08	2.37E+12	79E+11	1.34E+11	6.13E+09
		1101_03		3.48E+12	20E+10	3.05E+12	2.30E+11	74E+11	3.97E+09
1102 Clear Creek Above Tidal		1102_01	E. coli	18E+10	9.58E+09	1.29E+09	01E+08	1.09E+09	9.24E+09
		1102_02		35E+09	4.53E+09	1.46E+09	79E+08	3.68E+08	3.12E+08
		1102_03		1.01E+11	75E+10	1.91E+09	8.90E+08	07E+09	4.57E+10

Note that WLA calculations also include an allocation for permitted storm water discharges (WLA<sub>StormWater</sub>) which includes industrial and construction storm water discharges. Given the limited amount of data available and the complexities associated with simulating rainfall runoff and the variability of storm water loading, a simplified approach for estimating the WLA<sub>StormWater</sub> for areas was used in the development of these TMDLs.

## **Appendix II. One Total Maximum Daily Load for Bacteria in Gilleland Creek (Segment 1428C)**

TMDL Update to the WQMP: One Total Maximum Daily Load for Bacteria in Gilleland Creek, Segment 1428C.

The document *One Total Maximum Daily Load for Bacteria in Gilleland Creek, Segment 1428C*, was adopted by the TCEQ on 8/08/2007 and approved by EPA on 04/21/09, and became an update to the state's Water Quality Management Plan. The TMDL document did not include individual Waste Load Allocations (WLAs) for wastewater treatment facilities (WWTFs). Those were provided in a memo dated 2/7/08. Table 1 includes those individual WLAs once again.

Table 1 - Permitted Bacteria Allocations

State Permit Number	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – E. coli cfu/day	TMDL/ Comments
11931-001	1428C	Windermere Utility	2.0	$9.1 \times 10^9$	Updates p. 16.
11845-002	1428C	City of Pflugerville	5.3	$2.4 \times 10^{10}$	Updates p. 16.
12971-001	1428C	Dessau Utilities	0.5	$2.3 \times 10^9$	Updates p. 16.
12733-001	1428C	Dessau Fountains	0.15	$6.8 \times 10^8$	Updates p. 16.
13318-001	1428C	City of Austin Harris Branch	2.0	$9.1 \times 10^9$	Updates p. 16.
10543-013	1428C	City of Austin Wild Horse Ranch	0.99	$4.4 \times 10^9$	Updates p. 16.
10543-014	1428C	City of Austin Whisper Valley	3.0	$1.4 \times 10^{10}$	Updates p. 16.

The previous memo also included an update to the TMDL equations based on a change to a permitted discharge. This memo corrects a minor rounding error in the total WLA for the permitted wastewater treatment facilities.

As requested by EPA in its approval letter for the TMDL document, this memo further refines the TMDL equations to include a separate category for permitted storm water dischargers, which are presented as an aggregate load and designated  $WLA_{\text{Storm Water}}$  in the equations that follow.

### **Waste Load Allocation for Storm Water in the Gilleland Creek Watershed**

There is a total of 48,831.4 acres in the Gilleland Creek watershed. There are 20,339.6 acres of land in the watershed that have an agriculture exemption, according to the 2008 Travis County tax records. Therefore, 41.7% of the watershed can be viewed as agricultural production land, and is exempt from a TPDES Phase I or Phase II permit. There are currently five entities in the watershed that hold an MS4 permit (either a Phase I or Phase II).

TMDL at high flow =  $2.61 \times 10^{13}$  cfu/day (from the TMDL report)

TMDL x Agricultural Land % =  $LA_{\text{Agricultural Land}}$   
 $2.61 \times 10^{13}$  cfu/day x 0.417 (based on percent of agriculture land coverage) =  $1.09 \times 10^{13}$  cfu/day

$$\text{TMDL} - \text{LA}_{\text{Agricultural Land}} = \text{WLA}_{\text{Total}}$$
$$2.61 \times 10^{13} \text{ cfu/day} - 1.09 \times 10^{13} \text{ cfu/day} = 1.52 \times 10^{13} \text{ cfu/day}$$

$$\text{WLA}_{\text{Total}} - \text{WLA}_{\text{WWTF}} = \text{WLA}_{\text{Storm Water}}$$
$$1.52 \times 10^{13} \text{ cfu/day} - 6.35 \times 10^{10} \text{ cfu/day} = 1.51 \times 10^{13} \text{ cfu/day}$$
$$\text{WLA}_{\text{Storm Water}} = 1.51 \times 10^{13} \text{ cfu/day}$$

## **Appendix III. Three Total Maximum Daily Loads for Bacteria in the San Antonio Area (Segments 1910, 1910A, and 1911)**

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

The TMDL program was notified that loadings to TMDL segments need to be refined to reflect outfalls and dischargers found in the segments' watersheds which were not included in the original TMDL document, *Three Total Maximum Daily Loads for Bacteria in the San Antonio Area*, or those for which the allocations have changed (see Table 1). Note that the San Antonio Zoo's allocation did not change from what was presented in the TMDL document, and is therefore not included in this table. It is still reflected in the individual waste load allocation (WLA) totals found in Tables 2 and 3 that follow. Additionally, permitted storm water discharges were removed from this table to be consistent with other TMDLs. A total storm water WLA ("WLA-MS4") is given in Tables 2 and 3.

Table 1 - Permitted Bacteria Allocations

State Permit Number	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) – Fecal Coliform 10 <sup>6</sup> org/day	Waste Load Allocation (WLA) – <i>E. coli</i> 10 <sup>6</sup> org/day <sup>a</sup>	TMDL/Comments
10137-008	1910	San Antonio Water Service Reclaimed 4	3.0 11,	355	7,154	Updates p. 28.
10137-008	1911	San Antonio Water System Salado WRC, Outfall 1	20.4	77,214	48,645	Updates p. 28.
10137-008	1911	San Antonio Water System Reclaimed 2	10.0	37,850	23,846	Updates p. 28.
10137-008	1911	San Antonio Water System Reclaimed 3	10.0	37,850	23,846	Updates p. 28.
10137-008	1911	San Antonio Water System Reclaimed 5	2.6	9,841	6,200	Updates p. 28.
10085-001	1911	City of Floresville WWTP	0.9	3,407	2,146	Updates p. 28.
01514-000	1911	City of Public Service of San Antonio Sommers/ Deely/ Spruce / SES <sup>b,c</sup>	1,440	N/A	N/A	Updates p. 28.
13701-001	1911	East Central Independent School District <sup>c</sup>	0.06	N/A	N/A	Updates p. 28.

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

<sup>b</sup> This facility discharges cooling and blowdown water from steam electric generators, and is not expected to have a significant bacteria load.

<sup>c</sup> Discharges from these two facilities are upstream of or to Lake Calaveras. They are included in the table because they are within the USAR watershed, but they were not in impaired assessment units, so are not affected by the TMDL allocation.

The additional outfalls and dischargers included in the table above also change the TMDL equations for each segment, given in Tables 12 and 13 of the TMDL document (p. 30). The WLA was increased and MOS was reduced so that TMDL totals remain unchanged (and this affected less than 1% of the total loading for the TMDL). The WLA for storm water is now included in a separate column (WLA-MS4) from other WLA sources. These tables are updated as follows.

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	11,355	4,731,088	30,701	239,286	5,012,430
1910A W	alzem Creek	0	132,644	348	7,000	139,992
1911 USAR		167,866	17,321,548	10,221,066	1,291,723	29,002,203

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	7,154	2,980,585	19,342	150,752	3,157,833
1910A W	alzem Creek	0	83,566	219	4,410	88,195
1911 USAR		105,757	10,912,575	6,439,271	813,787	18,271,390

## **Appendix IV. One Total Maximum Daily Load for Bacteria in the Lower San Antonio River (Segment 1901)**

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TMDL Updates to the WQMP: Lower San Antonio River (Segment 1901)

The document *One Total Maximum Daily Load for Bacteria in the Lower San Antonio River: Segments 1901* was adopted by the TCEQ on 8/20/2008 and approved by EPA on 10/10/08, and became an update to the state's Water Quality Management Plan. The TMDL document gave one individual waste load allocation (WLA) to the City of Karnes City for a proposed WWTF, which has not yet been constructed, rather than determining two WLAs for the existing WWTFs that this new facility may replace. The table below gives individual WLAs for those existing WWTFs. The combined discharge of these two facilities is less than the discharge for the proposed facility. Therefore, this will not cause the TMDL allocations given in the TMDL document to be exceeded.

Table 1 - Permitted Bacteria Allocations

<b>State Permit Number</b>	<b>Segment Number</b>	<b>Permittee Name</b>	<b>Flow (MGD)</b>	<b>Waste Load Allocation (WLA) – <i>E. coli</i> 10<sup>9</sup> cfu/day</b>	<b>TMDL/Comments</b>
10352-001	1901	City of Karnes City – Milam St.	0.41 1.	96	Updates p. 28.
10352-002	1901	City of Karnes City – Main St.	0.092 0.	44	Updates p. 28.

## **Appendix V. Six Total Maximum Daily Loads for Bacteria in Waters of the Upper Gulf Coast (Segments 2421, 2422, 2423, 2424, 2432, and 2439)**

TMDL Updates to the WQMP: Six Total Maximum Daily Loads for Bacteria in Waters of the Upper Gulf Coast (Segments 2421, 2422, 2423, 2424, 2432, and 2439)

The document *Six Total Maximum Daily Loads for Bacteria in Waters of the Upper Gulf Coast: Segments 2421, 2422, 2423, 2424, 2432, and 2439* was adopted by the TCEQ on 8/20/2008 and approved by EPA on 02/04/2009, and became an update to the state's Water Quality Management Plan. This TMDL included individual waste load allocations (WLAs), which are now updates to the state's Water Quality Management Plan. The purpose of this document is to provide clarification about which dischargers are to be included in the TMDL, and to provide updates and corrections to the original list of individual WLAs. Note that this is a concentration-based TMDL, and therefore there are no final TMDL equations to be affected by the changes that follow.

The TMDL document does not explicitly discuss how facilities were chosen to be included in the individual WLA table. Through a GIS exercise and discussions between the TMDL and WQA teams, it was determined that facilities discharging within one stream mile of the listed segments will be given individual WLAs. This results in three facilities being dropped from the list in the TMDL document (now given loads of "N/A" in the table that follows), and three additional facilities are added to the list. Additionally, there was a typographical error involving the placement of a comma in the WLA for one facility which could cause confusion to readers, and is corrected here.

Table 1 - Daily Loads for WWTFs based on Concentration Allocations

State Permit Number	Segment Number	Permittee Name	Flow (MGD)	Waste Load Allocation (WLA) Fecal Coliform (org/day)	Waste Load Allocation (WLA) E. coli (org/day)	Waste Load Allocation (WLA) Enterococcus (org/day)	TMDL/Comments
<b>Facilities No Longer Included In Table Of Individual WLAs</b>							
10627-001	2421	Bacliff MUD	1.24	N/A	N/A	N/A	Updates p. A-1.
11546-001	2421	San Leon MUD	0.95	N/A	N/A	N/A	Updates p. A-1.
10396-001	2422	City of Anahuac & Trinity Bay Conserv District	0.6	N/A	N/A	N/A	Updates p. A-1.
<b>Facilities To Be Added To Table Of Individual WLAs</b>							
14734-001	2422	Trinity Bay Conserv District	0.1	757,082,356	476,961,884	132,489,412	Updates p. A-1.
14562-001 <sup>a</sup>	2439	Coastal Flats, Inc.	0.070	529,957,649	333,873,319	92,742,589	Updates p. A-1.
14489-001 <sup>a</sup>	2423	James Nicholas Vratiss	0.005	37,854,118	23,848,094	6,624,471	Updates p. A-1.
<b>Correction To Typographical (Comma Placement) Error</b>							
10770-001	2421	Bayview MUD	0.3	2,271,247,068	<del>143,0885,653</del> 1,430,885,653	397,468,237	Updates p. A-1.

<sup>a</sup> These facilities actually discharge to the Intracoastal Waterway Tidal (Segment 0702), with open connections within one mile to the listed segment.