January 2011 Update to the Texas Water Quality Management Plan

Prepared by the:
Office of Water, Water Quality Division

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
January 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/nav/eq/eq_wqmp.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 January 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 November 1, 2010 through January 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).

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, 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 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

<table>
<thead>
<tr>
<th>State Permit Number</th>
<th>Segment Number</th>
<th>EPA ID Number</th>
<th>Permittee Name County</th>
<th>Flow (MGD)</th>
<th>CBOD₅ (mg/L)</th>
<th>CBOD₅ (lbs/day)</th>
<th>NH₃-N (mg/L)</th>
<th>NH₃-N (lbs/day)</th>
<th>BOD₅ (mg/L)</th>
<th>BOD₅ (lbs/day)</th>
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<td>CBOD$_5$ (lbs/day)</td>
<td>NH$_3$-N (mg/L)</td>
<td>NH$_3$-N (lbs/day)</td>
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<td>BOD$_5$ (lbs/day)</td>
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<td>8.26</td>
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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>
<thead>
<tr>
<th>Planning Agency</th>
<th>Service Area</th>
<th>Needs</th>
<th>Needs Year</th>
<th>Basin Name / COG</th>
<th>Segment</th>
<th>County</th>
<th>WQMP Date</th>
<th>Comments</th>
<th>Year</th>
<th>Population</th>
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<td>City of Bryan</td>
<td>City of Bryan</td>
<td>C</td>
<td>2010</td>
<td>Brazos River Basin</td>
<td>1209</td>
<td>Brazos</td>
<td>02/01/2011</td>
<td>Improvements to the collection system.</td>
<td>2010</td>
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<td>2040</td>
<td>99,339</td>
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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

<table>
<thead>
<tr>
<th>Planning Agency</th>
<th>Service Area</th>
<th>DMA Needs</th>
<th>DMA Date</th>
<th>DMA Area/Comments</th>
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<td>T/C</td>
<td>11/23/2010</td>
<td>City Limits</td>
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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.


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 04/08/2009 and approved by EPA on 06/11/09, and became an update to the state’s WQMP.

The TMDL document included individual Waste Load Allocations (WLAs) for bacteria for entities within the Buffalo and Whiteoak Bayous watershed. The purpose of this update is to make the following change to the TMDL:

- Adjust WLAs for a permit that has been amended since the last WQMP update for this TMDL (Table 1).

In addition, the changes reflected in this update resulted in the shifting of allocations between the sum of the individual WLAs and the allowance for future growth within one assessment unit, as is reflected in Table 53 of the TMDL (and Table 2 here). 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, this overall number did not change, and Table 54 of the TMDL remains the same.

Table 1 - Waste Load Allocations for Permitted Facilities –Amended Discharges

<table>
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<tr>
<th>State Permit Number</th>
<th>Outfall</th>
<th>EPA Permit Number</th>
<th>Segment Number</th>
<th>Permittee Name</th>
<th>Flow (MGD)</th>
<th>Waste Load Allocation (WLA) - E. coli in Billion MPN/day</th>
<th>TMDL Comments</th>
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<td>Table 15, pp. 39-42</td>
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Table 2 - E. coli TMDL Summary Calculations

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<thead>
<tr>
<th>Assessment Unit</th>
<th>TMDL (Billion MPN/day)</th>
<th>WLAWWTF (Billion MPN/day)</th>
<th>WLAswimmingWater (Billion MPN/day)</th>
<th>LA (Billion MPN/day)</th>
<th>MOS (Billion MPN/day)</th>
<th>Upstream Load (Billion MPN/day)</th>
<th>Future WWTF Capacity (Billion MPN/day) Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1014A_01</td>
<td>195.04</td>
<td>30.48</td>
<td>141.2</td>
<td>15.69</td>
<td>0</td>
<td>0</td>
<td>7.67</td>
</tr>
</tbody>
</table>
Appendix II. Five Total Maximum Daily Loads for Indicator Bacteria in Brays Bayou Above Tidal and Tributaries For Segment Numbers 1007B, 1007C, 1007E, and 1007L

TMDL Updates to the Water Quality Management Plan (WQMP): Brays Bayou Above Tidal and Tributaries (1007B, 1007C, 1007E, and 1007L)

The document *Five Total Maximum Daily Loads for Indicator Bacteria in Brays Bayou Above Tidal and Tributaries For Segment Numbers 1007B, 1007C, 1007E, and 1007L* was adopted by the TCEQ on 09/15/2010 and approved by EPA on 09/27/10, and became an update to the state’s WQMP.

The TMDL document included individual Waste Load Allocations (WLAs) for bacteria for entities within the Brays Bayou watershed. The purpose of this update is to make the following changes to the TMDL:

- Remove the individual WLAs for permits that should not have been included in the original TMDL (six industrial permits with no domestic component) and remove the individual WLA for a permit that has been revoked (Table 1)
- Adjust two WLAs for permits that have been amended since the inception of the TMDL (Table 2)
- Assign an individual WLA for a permit issued since the calculations for the original TMDL were made (Table 3)

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 17 of the TMDL, and presented in Table 4 here. 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 - Waste Load Allocations for Permitted Facilities – Removed After Original TMDL

<table>
<thead>
<tr>
<th>State Permit Number</th>
<th>Outfall</th>
<th>EPA Permit Number</th>
<th>Segment Number</th>
<th>Permittee Name</th>
<th>Flow (MGD)</th>
<th>Waste Load Allocation (WLA) - E. coli in Billion MPN/day</th>
<th>TMDL Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>01286-000</td>
<td>001</td>
<td>TX0008851</td>
<td>1007B_01</td>
<td>Texas Medical Center Central Heating &amp; Cooling Services Corp.</td>
<td>N/A</td>
<td>N/A</td>
<td>No domestic component; remove from Table 15, pp. 35-36</td>
</tr>
<tr>
<td>01853-000</td>
<td>001</td>
<td>TX0052761</td>
<td>1007B_01</td>
<td>Shell Chemical LP &amp; Equilon Enterprises LLC</td>
<td>N/A</td>
<td>N/A</td>
<td>No domestic component; remove from Table 15, pp. 35-36</td>
</tr>
<tr>
<td>01853-000</td>
<td>002</td>
<td>TX0052761</td>
<td>1007B_01</td>
<td>Shell Chemical LP &amp; Equilon Enterprises LLC</td>
<td>N/A</td>
<td>N/A</td>
<td>No domestic component; remove from Table 15, pp. 35-36</td>
</tr>
<tr>
<td>01225-000</td>
<td>001</td>
<td>TX0003824</td>
<td>1007C_01</td>
<td>Texas Instruments Inc.</td>
<td>N/A</td>
<td>N/A</td>
<td>No domestic component; remove from Table 15, pp. 35-36</td>
</tr>
<tr>
<td>01225-000</td>
<td>002</td>
<td>TX0003824</td>
<td>1007C_01</td>
<td>Texas Instruments Inc.</td>
<td>N/A</td>
<td>N/A</td>
<td>No domestic component; remove from Table 15, pp. 35-36</td>
</tr>
<tr>
<td>03060-001</td>
<td>001</td>
<td>TX0104540</td>
<td>1007E_01</td>
<td>Weatherford Farms Inc.</td>
<td>N/A</td>
<td>N/A</td>
<td>No domestic component; remove from Table 15, pp. 35-36</td>
</tr>
<tr>
<td>13884-001</td>
<td>001</td>
<td>TX0119474</td>
<td>1007B_01</td>
<td>Nguyen, Loc Dac</td>
<td>N/A</td>
<td>N/A</td>
<td>Revoked; remove from Table 15, pp. 35-36</td>
</tr>
</tbody>
</table>

### Table 2 - Waste Load Allocations for Permitted Facilities – Amended Since Original TMDL

<table>
<thead>
<tr>
<th>State Permit Number</th>
<th>Outfall</th>
<th>EPA Permit Number</th>
<th>Segment Number</th>
<th>Permittee Name</th>
<th>Flow (MGD)</th>
<th>Waste Load Allocation (WLA) - E. coli in Billion MPN/day</th>
<th>TMDL Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>14850-001</td>
<td>001</td>
<td>TX0026972</td>
<td>1007B_01</td>
<td>City of Southside Place</td>
<td>0.3</td>
<td>0.715</td>
<td>Change to Table 15, pp. 35-36</td>
</tr>
<tr>
<td>14418-001</td>
<td>001</td>
<td>TX0056481</td>
<td>1007E_01</td>
<td>Chelford City MUD</td>
<td>14.0</td>
<td>33.4</td>
<td>Change to Table 15, pp. 35-36</td>
</tr>
</tbody>
</table>

### Table 3 - Waste Load Allocations for Permitted Facilities – Added Since Original TMDL

<table>
<thead>
<tr>
<th>State Permit Number</th>
<th>Outfall</th>
<th>EPA Permit Number</th>
<th>Segment Number</th>
<th>Permittee Name</th>
<th>Flow (MGD)</th>
<th>Waste Load Allocation (WLA) - E. coli in Billion MPN/day</th>
<th>TMDL Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>14961-001</td>
<td>001</td>
<td>TX0132438</td>
<td>1007B_01</td>
<td>Nancy Chau</td>
<td>0.03</td>
<td>0.0715</td>
<td>Add to Table 15, pp. 35-36</td>
</tr>
</tbody>
</table>

### Table 4 - E. coli TMDL Summary Calculations for Brays Bayou Assessment Units (Only equations that have changed are included)

<table>
<thead>
<tr>
<th>Assessment Unit</th>
<th>Sampling Location</th>
<th>Stream Name</th>
<th>TMDL (Billion MPN/day)</th>
<th>WLA_{WWTF} (Billion MPN/day)</th>
<th>WLA_{StormWater} (Billion MPN/day)</th>
<th>LA (Billion MPN/day)</th>
<th>MOS (Billion MPN/day)</th>
<th>Future (Billion MPN/day)</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1007B_01</td>
<td>11138</td>
<td>Brays Bayou Above Tidal</td>
<td>2,590</td>
<td>365</td>
<td>1,830</td>
<td>9.06</td>
<td>120</td>
<td>68.7</td>
<td></td>
</tr>
<tr>
<td>1007B_02</td>
<td>15848</td>
<td>Brays Bayou Above Tidal</td>
<td>162</td>
<td>37.6</td>
<td>100</td>
<td>2.05</td>
<td>8.09</td>
<td>13.8</td>
<td></td>
</tr>
<tr>
<td>1007C_01</td>
<td>11169</td>
<td>Keegans Bayou Above Tidal</td>
<td>325</td>
<td>86.0</td>
<td>200</td>
<td>7.01</td>
<td>16.3</td>
<td>16.3</td>
<td></td>
</tr>
<tr>
<td>1007E_01</td>
<td>16652</td>
<td>Willow Waterhole Bayou Above Tidal</td>
<td>130</td>
<td>2.98</td>
<td>120</td>
<td>0</td>
<td>6.49</td>
<td>0.463</td>
<td></td>
</tr>
</tbody>
</table>


The document Thirteen Total Maximum Daily Loads for Indicator Bacteria in Eastern Houston Watersheds For Segment Numbers 1006F, 1006H, 1007F, 1007G, 1007H, 1007I, 1007K, 1007M, 1007O, and 1007R was adopted by the TCEQ on 09/15/2010 and approved by EPA on 09/27/10, and became an update to the state’s WQMP.

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

- Remove the individual WLAs for two permits that have expired or have been withdrawn (Table 1)
- Correct the TMDL equation for one assessment unit (Table 2)

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 17 of the TMDL, and presented in Table 2 here. 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 for these assessment units.

After the completion of the TMDL, we noticed that the incorrect flow regime was used to determine the allocations for one assessment unit – 1007O_01. The lowest flows were used, rather than the highest. To be consistent with how the other TMDL allocations were developed for this and other Houston-area bacteria TMDL projects, the allocations for 1007O_01 were re-calculated based on the highest flow regime. The new equations are found in Tables 2 and 3 in this document, and update Tables 17 and 18 in the TMDL document, respectively.
Table 1 - Waste Load Allocations for Permitted Facilities – Removed After Original TMDL

<table>
<thead>
<tr>
<th>State Permit Number</th>
<th>Outfall</th>
<th>EPA Permit Number</th>
<th>Segment Number</th>
<th>Permittee Name</th>
<th>Flow (MGD)</th>
<th>Waste Load Allocation (WLA) - E. coli in Billion MPN/day</th>
<th>TMDL Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>14690-001</td>
<td>001</td>
<td>TX0128601</td>
<td>1006F_01</td>
<td>Normandy Utility Co LP</td>
<td>N/A</td>
<td>N/A</td>
<td>Permit expired; remove from Table 15, p. 40</td>
</tr>
<tr>
<td>11923-001</td>
<td>001</td>
<td>TX0075078</td>
<td>1006H_01</td>
<td>G &amp; C Investment Co LLP &amp; Garlock Sealing</td>
<td>N/A</td>
<td>N/A</td>
<td>Permit withdrawn; remove from Table 15, p. 40</td>
</tr>
</tbody>
</table>

Table 2 - E. coli TMDL Summary Calculations for Eastern Houston Assessment Units (Only equations that have changed are included)

<table>
<thead>
<tr>
<th>Assessment Unit</th>
<th>Sampling Location</th>
<th>Stream Name</th>
<th>TMDL (Billion MPN/day)</th>
<th>WLA_{WWTF} (Billion MPN/day)</th>
<th>LA (Billion MPN/day)</th>
<th>MOS (Billion MPN/day)</th>
<th>Future Growth (Billion MPN/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1006F_01</td>
<td>16662</td>
<td>Big Gulch Above Tidal</td>
<td>14.9</td>
<td>0.62</td>
<td>7.33</td>
<td>5.53</td>
<td>0.744</td>
</tr>
<tr>
<td>1006H_01</td>
<td>16663</td>
<td>Spring Gully Above Tidal</td>
<td>34.8</td>
<td>0.0358</td>
<td>29</td>
<td>3.96</td>
<td>1.74</td>
</tr>
<tr>
<td>1007O_01</td>
<td>16649</td>
<td>Unnamed Non-Tidal Tributary of Buffalo Bay</td>
<td>14.6</td>
<td>NA</td>
<td>13.87</td>
<td>0</td>
<td>0.73</td>
</tr>
</tbody>
</table>

Table 3 – Final TMDL Allocations for Eastern Houston Assessment Units (only equation that has changed is included)

<table>
<thead>
<tr>
<th>Assessment Unit</th>
<th>TMDL (Billion MPN/day)</th>
<th>WLA_{WWTF}^* (Billion MPN/day)</th>
<th>WLA_{StormWater} (Billion MPN/day)</th>
<th>LA (Billion MPN/day)</th>
<th>MOS (Billion MPN/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1007O_01</td>
<td>14.6</td>
<td>0</td>
<td>13.87</td>
<td>0</td>
<td>0.73</td>
</tr>
</tbody>
</table>

* Is WLA-WWT plus AFG
Appendix IV. 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 09/15/2010 and approved by EPA on 09/27/10, and became an update to the state’s WQMP.

The TMDL document included individual Waste Load Allocations (WLAs) for bacteria for entities within the Halls Bayou watershed. The purpose of this update is to make the following changes to the TMDL:

- Remove the individual WLAs for three permits that have expired (Table 1)
- Assign individual WLAs for two permits issued since the calculations for the original TMDL were made (Table 2)
- Add a clarification concerning one permit (Table 3)

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 4 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 Allocations for Permitted Facilities – Removed After Original TMDL

<table>
<thead>
<tr>
<th>State Permit Number</th>
<th>Outfall</th>
<th>EPA Permit Number</th>
<th>Segment Number</th>
<th>Permittee Name</th>
<th>Flow (MGD)</th>
<th>Waste Load Allocation (WLA) - E. coli in Billion MPN/day</th>
<th>TMDL Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>12070-004</td>
<td>001</td>
<td>TX0100323</td>
<td>1006D_02</td>
<td>Aldine ISD</td>
<td>N/A</td>
<td>N/A</td>
<td>Permit expired; remove from Table 16, pp. 35-36</td>
</tr>
<tr>
<td>12917-001</td>
<td>001</td>
<td>TX0095516</td>
<td>1006D_02</td>
<td>William Emmett Hartzog Jr.</td>
<td>N/A</td>
<td>N/A</td>
<td>Permit expired; remove from Table 16, pp. 35-36</td>
</tr>
<tr>
<td>12772-001</td>
<td>001</td>
<td>TX0093572</td>
<td>1006J_01</td>
<td>5510 Acorn LLC</td>
<td>N/A</td>
<td>N/A</td>
<td>Permit expired; remove from Table 16, pp. 35-36</td>
</tr>
</tbody>
</table>

### Table 2 - Waste Load Allocations for Permitted Facilities – Added Since Original TMDL

<table>
<thead>
<tr>
<th>State Permit Number</th>
<th>Outfall</th>
<th>EPA Permit Number</th>
<th>Segment Number</th>
<th>Permittee Name</th>
<th>Flow (MGD)</th>
<th>Waste Load Allocation (WLA) - E. coli in Billion MPN/day</th>
<th>TMDL Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>14966-001</td>
<td>001</td>
<td>TX0132519</td>
<td>1006D_02</td>
<td>Sampogna Properties LP</td>
<td>0.02</td>
<td>0.0477</td>
<td>Add to Table 16, pp. 35-36</td>
</tr>
<tr>
<td>14993-001</td>
<td>001</td>
<td>TX0132900</td>
<td>1006D_02</td>
<td>NK VII Partners LTD</td>
<td>0.005</td>
<td>0.0119</td>
<td>Add to Table 16, pp. 35-36</td>
</tr>
</tbody>
</table>

### Table 3 – Clarification for One Permitted Facility

<table>
<thead>
<tr>
<th>State Permit Number</th>
<th>Outfall</th>
<th>EPA Permit Number</th>
<th>Segment Number</th>
<th>Permittee Name</th>
<th>Flow (MGD)</th>
<th>Waste Load Allocation (WLA) - E. coli in Billion MPN/day</th>
<th>TMDL Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>01536-000</td>
<td>002</td>
<td>TX0007650</td>
<td>1006D_02</td>
<td>Ashbrook Simon-Hartley Operations LP</td>
<td>N/A</td>
<td>N/A</td>
<td>Not addressed in original TMDL; No domestic component. Do not add to Table 16, pp. 35-36</td>
</tr>
</tbody>
</table>

### Table 4 - E. coli TMDL Summary Calculations for Halls Bayou Assessment Units (Only equations that have changed are included)

<table>
<thead>
<tr>
<th>Assessment Unit</th>
<th>Sampling Location</th>
<th>Stream Name</th>
<th>TMDL (Billion MPN/day)</th>
<th>WLA_WWTF (Billion MPN/day)</th>
<th>WLA Stream/Drain (Billion MPN/day)</th>
<th>LA (Billion MPN/day)</th>
<th>MOS (Billion MPN/day)</th>
<th>Future Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1006D_01</td>
<td>20023</td>
<td>Halls Bayou Below US 59</td>
<td>463</td>
<td>42.6</td>
<td>382</td>
<td>3.4</td>
<td>23.2</td>
<td>12.1</td>
</tr>
<tr>
<td>1006D_02</td>
<td>11126</td>
<td>Halls Bayou Above US 59</td>
<td>280</td>
<td>25.4*</td>
<td>233</td>
<td>0</td>
<td>14</td>
<td>6.94*</td>
</tr>
<tr>
<td>1006J_01</td>
<td>16665</td>
<td>Unnamed Tributary of Halls Bayou</td>
<td>26.1</td>
<td>0.246</td>
<td>24.4</td>
<td>0</td>
<td>1.31</td>
<td>0.204</td>
</tr>
</tbody>
</table>

*Numbers changed, but are not apparent given the significant digits used in the table.
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 09/15/2010 and approved by EPA on 09/27/10, and became an update to the state’s WQMP.

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

- Remove the individual WLAs for permits that should not have been included in the original TMDL (two industrial permits with no domestic component) (Table 1)
- Include an individual WLA for a permit issued since the calculations for the original TMDL were made (Table 2)

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 17 of the TMDL, and presented in Table 3 here. 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 - Waste Load Allocations for Permitted Facilities – Removed After Original TMDL

<table>
<thead>
<tr>
<th>State Permit Number</th>
<th>Outfall</th>
<th>EPA Permit Number</th>
<th>Segment Number</th>
<th>Permittee Name</th>
<th>Flow (MGD)</th>
<th>Waste Load Allocation (WLA) - E. coli in Billion MPN/day</th>
<th>TMDL Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>01260-000</td>
<td>001</td>
<td>TX0004014</td>
<td>1007D_02</td>
<td>DuPont Houston Crop Protect</td>
<td>N/A</td>
<td>N/A</td>
<td>No domestic component; remove from Table 15, p. 33</td>
</tr>
<tr>
<td>02294-000</td>
<td>001</td>
<td>TX0079561</td>
<td>1007D_02</td>
<td>Muehlstein Compounded Prod.</td>
<td>N/A</td>
<td>N/A</td>
<td>No domestic component; remove from Table 15, p. 33</td>
</tr>
</tbody>
</table>

### Table 2 - Waste Load Allocations for Permitted Facilities – Added Since Original TMDL

<table>
<thead>
<tr>
<th>State Permit Number</th>
<th>Outfall</th>
<th>EPA Permit Number</th>
<th>Segment Number</th>
<th>Permittee Name</th>
<th>Flow (MGD)</th>
<th>Waste Load Allocation (WLA) - E. coli in Billion MPN/day</th>
<th>TMDL Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>14990-001</td>
<td>001</td>
<td>TX0132835</td>
<td>1007D_02</td>
<td>GRDM/West Main Partners LP</td>
<td>0.02</td>
<td>0.0477</td>
<td>New permit; add to Table 15, p. 33</td>
</tr>
</tbody>
</table>

### Table 3 - E. coli TMDL Summary Calculations for Sims Bayou Assessment Units (Only equations that have changed are included)

<table>
<thead>
<tr>
<th>Assessment Unit</th>
<th>Sampling Location</th>
<th>Stream Name</th>
<th>TMDL (Billion MPN/day)</th>
<th>WLAWWTF (Billion MPN/day)</th>
<th>WLAStormW (Billion MPN/day)</th>
<th>LA (Billion MPN/day)</th>
<th>MOS (Billion MPN/day)</th>
<th>Future (Billion MPN/day) Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1007D 02</td>
<td>11133</td>
<td>Sims Bayou Above Tidal</td>
<td>527</td>
<td>90.1*</td>
<td>358</td>
<td>10.2</td>
<td>26.3</td>
<td>42*</td>
</tr>
<tr>
<td>1007D 03</td>
<td>11132</td>
<td>Sims Bayou Above Tidal</td>
<td>777</td>
<td>107*</td>
<td>569</td>
<td>17.5</td>
<td>38.9</td>
<td>45.3*</td>
</tr>
</tbody>
</table>

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