Total Maximum Daily Load for Fecal Pathogens in Buffalo Bayou and Whiteoak Bayou

Texas Commission on Environmental Quality
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The TMDL and Implementation PLAN PROCESS

The establishment of the “TMDL” and Implementation Plan is a complex regulatory and policy process. The process results in “official” implementation activities in the watershed. Voluntary activities can begin at any time to prepare a Watershed Protection Plan

TMDL PROCESS

1. Prepare TMDL Report
2. TMDL Adoption - TCEQ
3. TMDL Approval – EPA
4. Prepare Implementation Plan
5. IP Approval - TCEQ

TMDL REPORT

TMDL REPORT

Primary element of TMDL

LC = WLA + LA + MOS

LC = Load Capacity
WLA = Waste Load Allocation
LA = Load Allocation
MOS = Margin of Safety

Expressed as load limits
Or
Percent Reduction

TMDL Report

LC = Load Capacity

How much can the stream assimilate and still achieve the standard

WLA = Waste Load Allocation

"Point Sources" All permitted sources (discharge, storm water, agricultural)

TMDL Report

LA = Load Allocation

"Non-Point" Sources, "Background"

MOS = Margin of Safety

Factor to allow for uncertainty in allocations and future growth

TMDL REPORT

- Prepare TMDL Report
  - Summarize Problem
  - Summarize Project Findings
  - TMDL allocation equation
- Peer Reviews
- Management Reviews
- Legal Reviews

TMDL ADOPTION PROCESS

TMDL ADOPTION PROCESS

- Commissioners approve for public comment (optional based on nature of TMDL)
- Posted for Comment for 30 days
- Public Hearing Conducted
- TMDL Revised as necessary
- Commissioners Adopt TMDL
- About 6 month process

TMDL ADOPTION PROCESS

- ⇨ Adopted TMDL is sent to EPA for Approval
- ⇨ Comments are negotiated
- ⇨ If irresolvable, EPA can develop the TMDL
- ⇨ If the TMDL allocations are changed appreciably, approval process is repeated.

IMPLEMENTATION PLAN

IMPLEMENTATION PLAN PROCESS

The Implementation Plan preparation begins as soon as the TMDL Report is complete

Develop in consultation with:

- **Stakeholders**
- **TCEQ Sections**
- **All State Agencies affected by TMDL**
- **All Federal Agencies affected by TMDL**

IMPLEMENTATION PLAN ELEMENTS

Activities

- Changes in wastewater permit requirements.
- Changes in storm water permit requirements and Storm water Management Plans
- Best Management Practices programs

IMPLEMENTATION PLAN ELEMENTS

Schedule of Activities

- "Adaptive Management" – the process will involve continuing changes in the IP based on observed results
- Phases – The plan will likely involve phases of activities based on results of in-stream monitoring
- The process will need to be a long term effort

IMPLEMENTATION PLAN ELEMENTS

Monitoring Program

- Monitoring of E-Coli in the Bayous and other locations will be needed throughout the implementation program
  - To determine the success of the program
  - To refine and focus efforts to reduce and eliminate bacteria loads
  - To support Adaptive Management and Phase strategies

IMPLEMENTATION PLAN ELEMENTS

Funding Sources

- Must be identified for all elements of the plan that require additional funding
- Local, State, Federal Sources
- An important consideration in establishing Phases and Adaptive Management

IMPLEMENTATION PLAN ELEMENTS

Program Evaluation

- A schedule and procedures for evaluating progress must be established to ensure success
  - To ensure that all activities in plan are followed
  - To evaluate the success of the program
  - To determine where changes are needed
  - 303(d) evaluation every 2 years

IMPLEMENTATION PLAN ELEMENTS

TCEQ Inspections

- The magnitude of the problem makes it important that all provisions of all permits that may help control bacteria loads are followed.

- Part of the implementation program will be to determine what the TCEQ can do to make the inspections in the Buffalo and Whiteoak Bayous watersheds more effective and efficient.

IMPLEMENTATION PLAN ELEMENTS

Continued Studies

Refine the understanding of all of the factors that contribute to the high E-Coli levels in the bayous

- **To ensure the most efficient use of implementation resources**
- **To target any problems or "hot spots" that may be discovered during implementation**

IMPLEMENTAION PLAN APPROVAL PROCESS

Follows TMDL approval by EPA

IMPLEMENTATION PLAN APPROVAL

- Commissioners Approve for Public Comment (optional based on nature of TMDL)
- Posted for Comment for 30 days
- Public Hearing Conducted
- Plan Revised as necessary
- Commissioners Approve Plan
- About 6 month process

PROJECTED SCHEDULE

- TMDL Report – Dec. 2005
- TCEQ TMDL Adoption – June 2006
- EPA TMDL Approval – Dec. 2006
- IP Report – Dec. 2006
- IP Approval – June 2007

INDICATOR BACTERIA STANDARDS

BACTERIA STANDARDS

Texas Administrative Code
TITLE 30 ENVIRONMENTAL QUALITY
PART 1 TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 307 TEXAS SURFACE WATER QUALITY STANDARDS
RULE 307.3 Definitions and Abbreviations

(12) Contact recreation--Recreational activities involving a significant risk of ingestion of water, including wading by children, swimming, water skiing, diving, and surfing.

Standard for *E-Coli* = 126 cfu/100ml – Geometric Mean, 394 cfu/100ml - Single Sample

BACTERIA STANDARDS

Texas Administrative Code
TITLE 30 ENVIRONMENTAL QUALITY
PART 1 TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 307 TEXAS SURFACE WATER QUALITY STANDARDS
RULE 307.3 Definitions and Abbreviations

(35) Non-contact recreation--Aquatic recreational pursuits not involving a significant risk of water ingestion; including fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity.

Standard for *E-coli* = 605 cfu/100ml – Geometric Mean

BACTERIA STANDARDS

Current Standards Development

- The Water Quality Standards Team - a large-scale review of potential revisions to recreational bacterial indicators in the TSWQS.
- A broader range of recreational use subcategories and criteria.
  - Draft EPA Guidance for Ambient Water Quality Criteria for Bacteria (November 2003)
  - 40 CFR Part 131 Water Quality Standards for Coastal and Great Lakes Recreation Waters (Final Rule)
  - EPA's Ambient Water Quality Criteria for Bacteria-1986
- Recommendations will be included in the next proposed triennial standards revisions available to the public for comments in early 2006.

TCEQ

BACTERIA STANDARDS

Changing the designated USE

For recreation standards, EPA and Texas Commission on Environmental Quality (TCEQ) presume that a primary contact recreation use and associated criteria are applicable unless a UAA indicates that less stringent uses or criteria are appropriate for a particular water body.

BACTERIA STANDARDS

UAA

A UAA is a multi-step assessment of the **physical**, **chemical**, **biological** and **economic** factors affecting the attainment of a use. UAAs are used by TCEQ to evaluate and define existing and potential uses of water bodies. They are used to determine if existing criteria and uses described in the TSWQS are appropriate

40 Code of Federal Regulations (CFR) 131.10(g) includes **six factors** that may be the basis for a State to conclude that a use is not attainable.

BACTERIA STANDARDS

UAA – Six Factors

1. **Naturally occurring pollutant** concentrations prevent the attainment of the use; or
2. **Natural, ephemeral, intermittent or low flow conditions** or water levels prevent the attainment of the use; or
3. **Human caused conditions or sources of pollution** prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or

BACTERIA STANDARDS

UAA – Six Factors

4. Dams, diversions or other types of **hydrologic modifications** preclude the attainment of the use,; or

5. **Physical conditions related to the natural features** of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or

6. **Controls more stringent than those required by sections 301(b) and 306** of the Act would result in substantial and widespread economic and social impact.

BACTERIA STANDARDS

UAA – Development

- An EPA-approved recreational UAA protocol is needed to successfully conduct a recreational UAA study on a particular water body.
- Currently, the *TCEQ does not have an approved protocol* for a recreational UAA.
- A study work plan would have to be developed, peer reviewed, public posting and stakeholder comments, and EPA review and approval.
- A minimum of two years would be required to conduct a recreational UAA. This timeline is consistent with the current aquatic life use UAA protocol.

BACTERIA STANDARDS

UAA – Approval

TCEQ review to assure conformance with the basic protocol.

The TCEQ would submit the UAA to EPA for review and preliminary approval.

Preliminary approval of a UAA by EPA means requested recreation use and criteria for the water body is “approvable” for a site-specific designation in the TSWQS.

TCEQ incorporates into the next revision of the TSWQS rule. A public notice would be issued and a public hearing would be held. The TSWQS revisions are adopted by TCEQ commissioners. Once adopted, they would be submitted to EPA for review and approval.

319 NPS Grant Application

319 NPS GRANT

A 319 grant proposal was submitted for **$70,000 for 2006-2007**

The proposal is to determine the bacteria reductions that are achieved using BMPs that are currently used within the watershed and general Houston area.

The purpose is to determine how much load reduction can be achieved using existing BMPs and BMP requirements

Thank You
Questions ?

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