

Texas Surface Water Quality Standards

30 TAC Chapter 307

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Texas Commission on Environmental Quality
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Use-Attainability Analysis (UAA)

-Assessment of the physical, chemical, biological, and economic factors affecting attainment of a water body use



-Conducted to evaluate & determine the attainable use of a water body

-Used to support adding or removing a use

-Prospective analysis of future attainability of designated uses

provides the demonstration necessary to support a use change



When is a UAA appropriate?

- Preliminary assessment of data indicates that the attainable use for a water body might be lower than the presumed or designated use
- To support the addition of a use to a water body
- To address a 303(d) listing for a category 5b water body
 - Category 5b: A review of the water quality standards for a water body will be conducted



Types of UAAs

- Aquatic Life Use (ALU) UAAs
 - 2 year study
 - 2 events-critical period (July 1-Sept 30; each year)
 - 1 events-non-critical (March 15-June 30; Oct. 1-15)
 - 3 biological events (fish, benthic macroinvertebrates)
 - 24-hr dissolved oxygen (DO) measurements
 - Instantaneous field measurements
 - Flow
 - Habitat
 - Water chemistry samples
- Recreational UAAs
 - Developing procedures in conjunction with Standards revision

Before Conducting a UAA


- Coordinate with your TCEQ project manager from the TMDL or NPS team (if applicable)
- Contact the TCEQ's Water Quality Standards Group to discuss:
 - Whether or not a UAA is appropriate for the water body in question
 - Appropriate UAA procedures
 - Representative and reference sites
 - Whether or not there is a UAA scheduled for a particular water body



Conducting a UAA



- TCEQ Procedures
 - SWQM Procedures (Volume 1 and 2)
 - Biological Monitoring Fact Sheet for UAA
 - Recreational UAA Procedures
- Quality Assurance/Quality Control
 - Quality Assurance Project Plan
- Site Reconnaissance
- Stations
- Laboratory
- Conduct UAA study






ALU UAA Report

- Introduction
- Problem Statement
- Objectives
- Study Area
 - Description of water body & designated uses & criteria
 - Permitted discharges & nonpoint sources
 - Historical data
- Methodologies
 - Site reconnaissance
 - Station descriptions
 - Project design
 - Sampling methods
- Results and Discussion
 - Physical evaluation
 - Hydrology
 - Habitat
 - Physicochemical evaluation
 - Biological evaluation
 - Institutional evaluation
 - Permitted discharges
 - Water rights
- Conclusions
- References
- Attachments
 - Tables
 - Biological, water chemistry, flow, DO, habitat, etc.
 - Maps
 - Stations, water body, reach assessed, permitted discharges, etc.
 - Photographs
 - Each transect, etc.
 - Field data sheets
 - Fill out completely
 - Field notes



Recreational UAA

- Unclassified water body
 - Data collection-short survey
 - Field data sheets & supporting documentation
 - Part of proposed standards revisions
- Classified water body
 - More intensive study & data collection effort
 - Report required & supporting documentation



Adjusting Site-specific Criteria

- Receiving water assessment, water effect ratio, or special study
- DO, dissolved minerals, pH, temperature, toxics
- Data analysis
- TCEQ review & approval
- Requires a standards change
 - EPA review & approval







Standards Change


- UAA demonstrates that the attainable use for a water body is lower than the presumed or designated use
- TCEQ concurs with UAA conclusions
- Requires a Standards change
 - Texas Surface Water Quality Standards rule revision
 - Rule revision: lengthy process
- Requires EPA approval

Rule making Process

- Rule-making procedure
 - Workgroup meetings
 - Draft markups (Standards & IPs)
 - Comments
- Commission
 - Seek approval to go proposed
- Texas Register publication
 - Public hearing
- Commission
 - Adoption
- EPA review & approval
 - Federal programs and permits

2000 Standards & the Next Revision



2000 Standards

- ☑ Commission adopted 7/26/00 (effective 8/17/00)
- ☑ Current status of 2000 Standards
 - ☑ Portions still under EPA Review
 - ☑ Aquatic life toxic criteria-freshwater
 - ☑ Comal River (Segment 1811)- temp
 - ☑ Se criteria (2 water bodies)
 - ☑ Majority approved
 - ☑ Few portions disapproved or no action
 - ☑ More information- Standards webpage...

Next Revision: What we are working on...

- ☑ Site-specific uses & criteria
- ☑ Recreation
- ☑ Nutrient criteria
- ☑ Toxics

Site-specific ALU & DO Criteria



- ☑ Classified waters (Appendix A)
 - ☑ ~14 segments
- ☑ 303(d) list of impaired waters
 - ☑ Category 5b
- ☑ UAA
- ☑ WQS & EPA review
- ☑ Change in designated use
 - ☑ requires a Standards change (rule revision)



Unclassified Waters Site-specific ALU and DO Criteria



- 303(d) List: 5 streams
- Receiving Water Assessment (RWA) for a Permit action
 - ~60 streams
- Conduct 2nd RWA
 - 1st RWA results indicate use is lower than the presumed use
- Assign appropriate ALU & DO criteria
- Requires a Standards change
 - Rule revision-incorporate in Appendix D



Other site-specific criteria

- ☑ TDS, Cl, SO₄
 - ☑ 21 segments (1 newly calculated); Appendix A
- ☑ pH
 - ☑ 8 segments; Appendix A
- ☑ Toxic criteria
 - ☑ Appendix E
 - ☑ Water effect ratio studies (16 initiated)
 - ☑ Approved by EPA
 - ☑ Use in permitting
 - ☑ EPA approved 307.6(c)(9) provision



Recreational Use



- Expand categories
 - Include subcategories
 - ☒ primary
 - ☒ secondary



- Criteria changes
 - Geometric mean
 - Single sample



Recreational Use

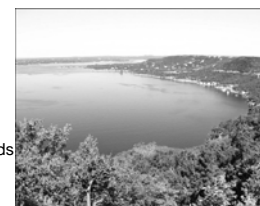
- ☑ Fecal coliform
 - ☑ Phase to *E.coli* or Enterococcus in permitting
 - ☑ Retain in oyster waters
- ☑ Enterococci for high salinity freshwater
- ☑ Implementation
 - ☑ Recreational UAAs
- ☑ Assessment
 - ☑ Geometric mean only
- ☑ Single Sample
 - ☑ Swimmer notification
 - ☑ Wastewater permit compliance




Nutrients




- ☑ Reservoirs - Main body
 - ☑ Criteria based on historical chlorophyll a
 - ☑ TP as secondary screening?
- ☑ Implementation
 - ☑ Reservoir-wide
 - ☑ Localized effects
- ☑ Assessment
 - ☑ Chlorophyll a median
 - ☑ TP-secondary screening?
- ☑ Future
 - ☑ Rivers, streams, estuaries, wetlands







Human Health




- Consider adopting
 - criteria for a variety of compounds and metals per EPA request
 - ~20 new compounds and metals
 - congeners of dioxin and PCBs
- Human health recalculation
 - child exposure
 - fish consumption amounts



Fish Tissue Based Criteria




- ☑ Hg - Expressed as methylmercury in fish tissue:
 - ☑ TCEQ and EPA guidance
 - ☑ 1st criteria for fish tissue conc.
- ☑ Other constituents
 - ☑ DDT and its metabolites
 - ☑ Dioxin/furans
 - ☑ PCBs




Implementation Procedures

- ☑ Changes
 - ☑ Whole Effluent Toxicity
 - ☑ Seagrass Use
 - ☑ State endangered & threatened species
 - ☑ Minimum analytical levels
 - ☑ Dechlorination
- ☑ Questions
 - ☑ Contact Karen Holligan (Water Quality Division)
512-239-4589 or kvhollig@tceq.state.tx.us



Next Steps

- Workgroup meeting
January 6-7, 2009
Standards & Implementation Procedures
- Commission
- Texas Register rule process
- Standards Revision Questions
 - Contact Dine Tien
512-239-4589 or dtien@tceq.state.tx.us

Photos Courtesy of:

- Yahoo.com
- Google.com
- O'Henry's Hideaway
- River Sports Tube
- USGS
- Texas Parks & Wildlife
- Texas Water Safari
- University of Texas
- Florida Dept. of Environmental Protection
- Medina River Ranch Resort
- NABS (benthos.org) Rick Merritt
- C. Frank Starmer at
http://frank.itlab.us/silverglen_2004/index.html




Web Pages

Primary standards web page address:
http://www.tceq.state.tx.us/nav/eq/eq_swqs.html

Standards Advisory Work Group Address:
http://www.tceq.state.tx.us/permitting/water_quality/stakeholders/swqsawg.html
Advisory ... Groups
Water Advisory Groups - Water Quality
Surface Water Quality Advisory Workgroup