

The Texas Natural Resource Conservation Commission (commission) proposes amendments to §§307.2-307.10, concerning the Texas Surface Water Quality Standards.

As published in the Rules Review section of this issue of the Texas Register, the commission is also proposing the review of this chapter in accordance with, Texas Government Code, §2001.039, and the General Appropriations Act Article IX, Section 9-10.13, 76th Legislature, 1999, which require state agencies to review and consider for readoption each of their rules every four years. The commission has made a preliminary assessment under its review of the rules in Chapter 307 that the reasons for the rules continue to exist. The rules were adopted to satisfy Texas Water Code, §26.023, which requires the commission to set water quality standards by rule for the water in the state and allows the commission to amend the standards from time to time. The rules were also adopted to satisfy Federal Clean Water Act, §303, which requires states to adopt water quality standards and review and revise those standards at least once every three years.

BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE PROPOSED RULES

Section 303 of the Federal Water Pollution Control Act (commonly referred to as the Clean Water Act, 1972, 33 U.S.C.1313(c)) requires all states to adopt water quality standards for surface water. A water quality standard consists of the designated beneficial use or uses of a water body or a segment of a waterbody and the water quality criteria that are necessary to protect the use or uses of that particular waterbody. Water quality standards must also contain an antidegradation policy. Water quality standards are the basis for establishing discharge limits in waste discharge permits.

The states are required under the Clean Water Act to review their water quality standards at least once every three years and revise them, if appropriate. States review standards because new scientific and technical data may be available which have a bearing on the review. Further, environmental changes over time may warrant the need for a review. Where standards do not meet established uses, the standards must be periodically reviewed to see if uses can be attained. Additionally, water quality standards may have been established for the protection and propagation of aquatic life and for recreation in and on the water without sufficient data to determine whether the uses were attainable. Finally, changes in the Clean Water Act or in the United States Environmental Protection Agency's (EPA) regulations may necessitate reviewing standards to ensure continual compliance.

The states, in conjunction with EPA, select water bodies for which water quality standards are to be reviewed in-depth. To make this determination, the states and EPA are aided by: §304(l), CWA, lists of waters; state §305(b), CWA, reports (these reports provide an assessment of the condition of waters within the boundaries of each state); the waters identified under §303(d), CWA,; the construction grants priority list; and segments where major waste discharge permits have expired.

States may modify non-existing designated uses when it can be demonstrated, through a Use Attainability Analysis, that attaining the higher designated use is not feasible. Factors affecting a water body, such as naturally high water temperatures, physical impediments or natural background pollutant levels may effectively prevent a non-existing designated use from being met. States may adopt seasonal uses as an alternative to reclassifying a waterbody or segment thereof to uses requiring less stringent criteria.

Following adoption of water quality standards, the Governor or his designee must submit the officially adopted standards to the EPA Region 6 Administrator for review. The Regional Administrator reviews the state's standards to determine compliance with the Clean Water Act and implementing regulations. Standards are not effective until approved by EPA.

The Texas statewide surface water quality standards were last amended in July, 1995. Amendments to §307.4, relating to General Criteria, and §307.10, relating to Appendices A-E, were made in April 1997 as a result of the EPA's disapproval of the change in presumed standards for perennial streams from an aquatic-life use of "high" to an aquatic-life use of "intermediate" for East Texas streams. EPA last approved the state's standards in 1998.

The commission establishes, reviews, and revises on a periodic basis the State of Texas' surface water quality standards pursuant to the Texas Water Code, §26.023. The commission has adopted site-specific standards for all classified water bodies and presumed standards for all unclassified water bodies for which the state has not yet completed site-specific studies. The commission has also established a program to conduct such site specific studies, called Receiving-Water Assessments, which consist of fish sampling, habitat assessment, chemical analysis, and in some cases invertebrate sampling, to help determine the attainable aquatic-life uses and dissolved oxygen criteria for unclassified streams. A receiving-water assessment may be conducted on an unclassified stream: (1) when a new discharge is proposed to enter a stream believed to be perennial or intermittent with perennial pools; (2) when there is a change proposed for an existing discharge, such as an increase in flow or loading; or (3) when there is a need to better ascertain the aquatic life use of a water body. Sampling is conducted over one or two

days in an area of the stream that is not influenced by the discharge and in most cases is relatively unimpacted. When a stream has been individually studied, site-specific standards (uses and criteria) may replace the presumed standards for that stream.

In addition, the commission has established a program for conducting and evaluating Use-Attainability Analyses. A Use-Attainability Analysis is the evaluation and final determination of the appropriate water quality standards for a water body. The analysis may be based on a receiving-water assessment or other kind of study acceptable by the executive director, or a combination of studies. The use-attainability procedures require the identification of reference areas and the defining of stream reaches to be included in the assessment. Physical evaluations of the streambeds, flow characteristics and habitat descriptions are also categorized. Fish sampling and, in some cases, macroinvertebrate sampling are also conducted. The assessment, which may be included in a receiving-water assessment, is reviewed and a final determination is made on whether the designated aquatic life uses on a classified stream should be revised or a site-specific standards modification to presumed aquatic life uses for an unclassified perennial stream should be established. This final determination is presented in a formal report known as a Use-Attainability Analysis and submitted to EPA for approval.

The state's surface water quality standards are necessary to protect public health, enhance water quality, and meet the purposes of the Federal Clean Water Act, which is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The commission uses intensive survey data, the §304(l) list of waters, monitoring data, §305(b) data, and other available data for a waterbody to determine whether standards are appropriate. Physical chemical and biological factors are examined to

assess whether the criteria are appropriate. The commission uses results from receiving-water assessments and information from sampling and monitoring data to develop the standards.

The commission is proposing editorial revisions as well as substantive changes. Editorial revisions are adopted to improve clarity, to make grammatical corrections, and to renumber or reletter subsections as appropriate. The commission is also proposing changes that are needed to incorporate additional information on toxic pollutants and new data on waters in the state. The proposed changes would also provide revisions to general criteria that are more consistent with current permitting practices and with the requirements of Texas Pollutant Discharge Elimination System (TPDES) permitting. The proposed changes also provide clarity on how the standards apply in certain permitting situations.

In conjunction with this rule proposal, the commission is proposing revisions to its implementation procedures for applying the proposed standards in wastewater discharge permits. These changes incorporate the proposed changes to the water quality standards contained in this rule proposal. Changes are also being proposed to implement the antidegradation policy. The implementation procedures are contained in a guidance document entitled, *Procedures to Implement the Texas Surface Water Quality Standards in TPDES Discharge Permits*. This document provides guidance and explanation of the general and technical procedures used in implementing the standards in wastewater discharge permits. The document proposes changes that are consistent with the changes proposed for Chapter 307. Information has been added on endangered and threatened species, temporary standards and variances, dissolved oxygen modeling, antidegradation, Total Maximum Daily Loads (TMDLs), total dissolved solids (TDS), and storm water permitting. These implementation procedures are

referenced as Series 23 in the commission's Continuing Planning Process which describes the commission's water quality management program. The procedures must be approved by the commission and submitted to EPA for approval. Although not part of the regulatory action covered by the proposed revisions to the water quality standards, the revisions to the implementation procedures are being proposed at the same time as the revisions to the standards to allow for a more coordinated and consistent review by the commission and the public. The Notice of Availability of the proposed revisions to this document which includes notice of the public comment period and the date of the public comment hearing is published in the Notice section of this edition of the *Texas Register*.

Implementation procedures, which address how the standards are applied in wastewater discharge permits, provide flexibility in how affected permittees can change treatment procedures so that their discharge will not affect a segment's ability to maintain its water quality standards. Costs related to these changes are site-specific and will be dependent upon the extent of the permittee's changes to their treatment process. Cost figures are contained in the Fiscal Note section of this preamble.

SECTION BY SECTION DISCUSSION

Proposed changes to §307.2, relating to Description of Standards, clarify provisions and revise the sequence of steps for seeking and applying for temporary variances, clarify that interim effluent limits may not last longer than three years except where a temporary variance is in effect, and provide a new provision for adopting temporary standards where a criterion is not attained and cannot be reasonably attained for reasons listed in 40 CFR 131.10(g). Temporary variances are granted to permittees when evidence indicates that a site-specific standard may be appropriate. The variance, which may include

effluent limits, is granted to allow the permittee time to gather information to support a standards change, but may not last more than three years. The proposed changes require preliminary information indicating that the standards change may be appropriate to be included in the variance request, and provide for the variance request to be included in the public notice for the permit application. The proposed changes also provide that variances for TPDES permits will require review and approval by EPA during the permitting process. This provision is in accordance with the Memorandum of Agreement with the EPA on the assumption of the NPDES program in which the commission agreed that EPA would review all draft TPDES permits which include a recommendation of a variance. Provisions for the adoption of temporary standards have also been proposed. These temporary standards may be adopted as an alternative to downgrading a use where a criterion is not attained or cannot be reasonably attained for reasons such as naturally occurring pollutant concentrations, or natural, ephemeral, intermittent or low-flow conditions or water levels. The temporary standard shall expire not later than the completion of the next triennial revision when additional information and studies may indicate the appropriate standard.

Proposed changes to §307.3, relating to Definitions and Abbreviations, include revisions to the definitions for “best management practices”, “fecal coliform”, “noncontact recreation”, “seven-day two-year low-flow”, “standards implementation procedures”, and “water-effects ratio”. New definitions have been added for “attainable use”; “bioconcentration factor”; “biological integrity”; “classified”; “designated use”; “*E. coli*” and “enterococci bacteria”; “existing use”; “general contact recreation”; “high-use contact recreation”; “incidental fishery”; “intermittent stream with perennial pools”; “pollutant”; “point source”; “presumed use”; “public drinking water supply”; “seagrass

propagation”; “segment”; “significant aquatic life use”; “storm water”; “storm water discharge”; “tidal”; “to discharge”; “total maximum daily load (TMDL)”; and “wetland water quality functions”. Attainable, designated, existing, and presumed uses have all been individually defined to provide for a more accurate description of each use. The definition for “no significant aquatic life use” has been deleted and replaced with a new definition for “significant aquatic life use”. The definition for “marine” has been replaced with “saltwater”. The revisions and additions to definitions are proposed in response to stakeholder comments requesting that an expansion of technical and frequently used terms in the standards could provide additional clarity to the requirements. Revisions to definitions are also needed to make them consistent with current scientific technical practices and EPA definitions as they relate to activities such as those associated with TPDES permitting. Definitions have also been revised or added to clarify changes being proposed in the standards. The proposed changes also add new abbreviations in §307.3(b) for maximum contaminant level (for public drinking water) (MCL), municipal separate storm sewer system (MS4), TMDL, Texas Pollutant Discharge Elimination System (TPDES), and total suspended solids (TSS).

Proposed changes to §307.4, relating to General Criteria, clarify that the provision for settleable solids does not prohibit dredge and fill activities under Clean Water Act, §404. The revisions also clarify that acute toxic criteria apply to all water in the state, and that chronic toxicity criteria apply to surface waters with a significant aquatic life use of limited, intermediate, high or exceptional. These revisions are proposed in response to permitting issues concerning the applicability of specific toxic criteria to waters in the state. Salinity provisions have been revised to indicate that concentrations of dissolved minerals such as chlorides, sulfates, and total dissolved solids will be maintained such that existing,

designated, and attainable uses will not be impaired, and that absence of numerical salinity criteria shall not preclude evaluations and regulatory actions based on estuarine salinity. The revisions also clarify the general provision that dissolved oxygen (DO) concentrations shall be sufficient to support existing, designated, and attainable aquatic life uses. This revision is proposed to more clearly address the general criteria for dissolved oxygen for all waters in the state regardless if the waters are classified or unclassified. The revisions also clarify that perennial waters not listed in Appendix A or D are presumed to have a high aquatic life use and corresponding dissolved oxygen criteria, while intermittent streams must maintain a 24-hour dissolved oxygen mean of at least 2.0 mg/L and an absolute minimum dissolved oxygen concentration of 1.5 mg/L. The revisions on perennial waters clarify distinctions between presumed aquatic life uses for different water body types. The revisions to §307.4 also include the addition of an aquatic life use and habitat provision to protect existing aquatic life uses. The addition of an aquatic life use and habitat provision are in response to questions the commission has received about the role of habitat with respect to dredge and fill activities. The language is added to make clear that the protection of aquatic life uses has and continues to include managing all instream pollution that affects such uses, including habitat modifications. An aquatic recreation criteria has been added to replace the bacteria criteria. This change was made in order to incorporate new bacterial indicators of recreational suitability, which are proposed in §307.7. The aquatic recreation criteria applies to all water in the state not specifically listed in Appendix A of §307.10 of this title.

Proposed changes to §307.5, relating to Antidegradation, clarify that the development and implementation of TMDLs are actions subject to the antidegradation policy. The changes also reflect EPA's use of the "tier" approach to describing the antidegradation policy. The antidegradation policy

affords three tiers or levels of protection to the waters in the state. Tier 1 stipulates that water quality sufficient to protect existing uses shall be maintained. Under Tier 1 in the proposed rules, reviews will ensure that existing uses are not impaired by pollutant loadings. All proposed discharges which could cause an impairment of an existing use are subject to Tier 1 reviews. Tier 2 provides that no activities subject to regulatory action which would cause degradation of waters that exceed fishable/swimmable quality will be allowed unless it can be shown to the commission's satisfaction that the lowering of water quality is necessary for important economic or social development. The proposed revisions clarify that Tier 2 reviews require the protection of actual water quality (unless certain conditions are met) in segments where water quality exceeds levels necessary to support propagation of fish, shellfish, and wildlife, and recreation in and on the water. Tier 3 stipulates that the quality of Outstanding National Resource Waters (ONRW) be maintained and protected. Proposed Tier 3 reviews apply to all pollutants that could cause degradation of ONRWs. ONRWs are high quality or ecological unique waters such as those within the jurisdiction of National and State Parks and Wildlife Refuges. The primary intent of establishing an ONRW is to protect the highest quality and/or unique waters or waters of ecological significance. These are waters that are important, unique or sensitive ecologically, such as swamps or hot springs, where the commonly applied use classifications and supporting criteria do not always serve to protect such waters. No ONRWs have been designated in Texas thus far. Finally, the revisions further clarify that antidegradation review procedures apply to TPDES permits for wastewater, permits relating to dredge and fill projects, and other permitting and regulatory activities which may increase pollutant loadings. As required by the EPA regulations, the state's water quality standards must also contain an antidegradation policy.

Proposed changes to §307.6, relating to Toxic Materials, clarify that acute numerical aquatic-life criteria for toxic substances apply above low-flow conditions (1/4 of 7Q2). The revision is proposed in response to concerns on the applicability of acute criteria at low-flow conditions. The proposed revisions regarding 1/4 of 7Q2 as low-flow condition are also consistent with the implementation procedures currently in place and as proposed in the revision of the procedures. One-fourth of “7Q2” flow is specified as the stream flow above which acute criteria apply, in order to clarify the “design” condition for applying acute criteria in wastewater discharge permits and other regulatory actions. This flow is proposed because it more clearly defines how discharges are evaluated to preclude acute toxicity beyond small zones of initial dilution, which are specified in §307.8(b)(2)(A) to be “not...more than 25% of the volume of stream flow above seven-day, two-year low-flow conditions.” The revisions also include the addition of human health criteria for acrylonitrile, atrazine, perchlorate, and 1,3-dichloropropene to Table 3, relating to Human Health Protection. Concern over the potential presence of these toxics in water in the state and adequate toxicity data support the addition of these toxics to the standards. The criteria for human health protection in Table 3 have been revised to reflect the latest data provided by EPA. The bodyweight scaling factors used to convert carcinogen-related data on laboratory test animals to humans has been revised to 3/4 power in order to be consistent with current scientific practices and EPA guidance. Mirex has been removed from Table 3 due to a lack of national data for determining criteria for human health. The standards will continue to address Mirex through aquatic life criteria. Polychlorinated Biphenyls (PCBs) calculations have been revised in accordance with EPA guidance to reflect the total of all congeners and not the sum of seven more common congeners. A congener is a chemical formation, and PCBs are known to have various chemical formations. The revised calculation is proposed to be more protective of human health. Changes have

also been made to Table 1, concerning Toxic Criteria to Protect Aquatic Life, and Table 2, concerning Total Hardness and pH Values. The changes to Table 1 include adjusting criteria for dissolved metals as required by EPA and adding water-effects ratios to metals criteria to address site-specific differences in toxicity due to water chemistry. Changes to Table 2 include updating basin pH and hardness values in response to new data received. Chemical Abstracts Service (CAS) numbers have also been added for each substance in Tables 1 and 3.

Proposed changes to §307.7, relating to Site-Specific Uses and Criteria, include the rewording of the general provisions for recreational criteria that describes recreational use as two categories—contact recreation waters and noncontact recreation waters. Contact recreation activities are those activities involving a significant risk of ingestion of water such as wading by children, swimming, and water skiing. Noncontact recreation includes those aquatic recreational activities not involving a significant risk of water ingestion such as fishing and boating. The revisions to this section also propose a change in the recreational indicators from fecal coliform to *E. coli* and enterococcus. *E. coli* and enterococcus have been identified as being more indicative of assessing risk of illness due to ingestion of water. The transition from fecal coliform to *E. coli* and enterococcus is a result of EPA guidance and in response to recommendations from a commission study on indicator bacteria. The revisions also establish protocols for compliance monitoring for different recreational categories. In addition to these changes, the commission is soliciting comment on whether to add criteria for bacterial indicators that apply to shorter time frames in selected public swimming areas. Examples to consider for such areas include (1) applying the proposed geometric mean criteria to five or more samples collected over a 30-day period, and (2) specifying single-sample screening guidelines, such as those recommended by EPA for

designated beach areas (235 *E. coli* colonies per 100 milliliters of water, 104 Enterococci per 100 milliliter) or other similar guidelines. The commission also solicits comments on whether additional water bodies should be considered suitable for high-use contact recreation, how such water bodies should be identified, and what water bodies (if any) should be considered for addition. Finally, changes in §307.7 also specify the wetland water quality functions that are to be considered as uses to be maintained and protected. Changes have also been made to Table 5, concerning critical low-flow values for dissolved oxygen for the eastern and southern Texas ecoregions. These changes clarify how dissolved oxygen criteria for East Texas streams are applied to all water bodies, including segments, at lower flow ranges, and how the critical low-flow values can be adjusted by relating site-specific dissolved oxygen concentrations with other stream characteristics.

The commission proposes to change §307.7(b)(5) to specify that seagrass propagation is a use which will be maintained and protected, in those waters where seagrass occurs. The commission initiates this proposal based upon its participation in development and regulatory implementation of the joint agency *Seagrass Conservation Plan for Texas*. This plan has been endorsed by the Texas Parks and Wildlife Department, the General Land Office, and the commission. However, the commission is soliciting specific comment on whether inclusion in the Texas Surface Water Quality Standards is the most effective way to provide that protection.

The existing Texas Surface Water Quality Standards require the protection of aquatic life uses, including seagrass propagation. Based upon the existing rules, the commission has been taking regulatory actions to maintain and protect seagrass propagation. Examples of these regulatory actions

include setting terms and conditions for TPDES permits and consideration of seagrass as part of state water quality certification of U.S. Army Corps of Engineers permits authorizing the fill of water in the state.

In addition, preservation and protection of submerged aquatic vegetation is an established goal and policy of Texas's approved Coastal Management Plan per 31 TAC §501.1(a). The commission has established procedures to consider impacts of its regulatory actions on coastal water resources, including seagrass. In accordance with §281 subchapter B of this title, the executive director produces a written summary of its proposed regulatory action and its determination of consistency with the goals and policies of the Coastal Management Plan.

In view of the existing regulatory framework, the commission is soliciting public comment on whether the proposed amendment of §307.7(b)(5) would be either necessary or more effective in implementing the Seagrass Conservation Plan. Since seagrass propagation is an aquatic life use and habitat is already protected by the Texas Surface Water Quality Standards, would there be an additional benefit from its specific mention as a protected aquatic life use? Is there some added protection of this important natural resource which would result, considering that this would not increase the commission's existing regulatory authority? Are there other alternatives to the amendment of the Texas Surface Water Quality Standards available to the commission that would increase the protection of seagrass propagation? Receipt of public comment on this proposal will assist the commission in determining whether final adoption of the standard is beneficial or necessary.

Proposed changes to §307.8, relating to Application of Standards, clarifies the stream flow conditions where acute toxic criteria apply. The revisions specify that acute toxic criteria apply at stream flows above 1/4 of 7Q2. The revisions also clarify that pollutants in storm water will not impair existing or designated uses. The revisions go on to explain that short term exceedances of numerical criteria may not be considered a violation of water quality standards unless the exceedance is due to human activity and would not occur without that activity.

Proposed changes to §307.9, relating to Determination of Standards Attainment, update procedures such as the required approval by the commission of sampling locations and the procedures for the collection and preservation of water samples--for assessing instream standards compliance. This proposed revision is needed to maintain consistency and quality assurance in reporting. The revisions provide new provisions for measuring biological integrity which is assessed by sampling the presence and abundance of aquatic organisms. This proposal is in accordance with EPA guidance and current technical practices.

Proposed changes to §307.10, relating to Appendices A-E, include changes to aquatic life uses for the lower Pease River (new segment 0230) from High to Intermediate, the upper arm of Sam Rayburn reservoir (new segment 0615) from High to Intermediate, and the Nueces River Tidal (segment 2101) from Exceptional to High in Appendix A. These proposed changes are based on the results of Use Attainability Assessments that have been performed. Proposed changes in Appendix A also include (1) the creation of two new segments (1256 - Brazos River/Lake Brazos and 1257 - Brazos River Below Whitney Lake) from existing segment 1242 which has been renamed to Brazos River Above Navasota

River, and (2) the creation of segment 1802 - Guadalupe River Below San Antonio River from existing segment 1803 - Guadalupe River Below San Marcos River to account for different hydrological conditions and dissolved minerals (total dissolved solids, chlorides, and sulfates) gradients and different ambient concentrations. Another new segment, segment 0502- Sabine River Above Tidal, has been created from the upper portion of segment 0501- Sabine River Tidal and the lower portion of segment 0503 - Sabine River Below Toledo Bend Reservoir, which has been renamed Sabine River Above Caney Creek, to account for different hydrological conditions. Dissolved minerals criteria revisions are proposed for numerous segments based on new calculations using updated information. Other proposed changes to §307.10 include the addition of the aquifer protection use to 14 existing segments (1243 - Salado Creek, 1244 - Brushy Creek, 1248 - San Gabriel/North Fork San Gabriel River, 1249 - Lake Georgetown, 1250 - South Fork San Gabriel River, 1251 - North Fork San Gabriel River, 1804 - Guadalupe River Below Comal River, 1806 - Guadalupe River Above Canyon Lake, 1809 - Lower Blanco River, 1810 - Plum Creek, 1811 - Comal River, 1814 - Upper San Marcos River, 1815 - Cypress Creek, and 1903 - Medina River Below Medina Diversion Lake), and the addition of the public water supply use to segment 2308 - Rio Grande Below International Dam. The protection of these segments is included in the Chapter 213 Edwards Aquifer rules and noted in Appendix A. The pH range for segment 0507 - Lake Tawakoni has been revised as a result of additional data. Proposed new indicator bacteria and criteria for recreational uses are also included in Appendix A. Proposed changes to Appendix B include a recalculation of critical-condition flows to incorporate more recent instream flow data. Appendix C proposed changes include descriptions for new segments, and revised descriptions for those segments affected by the creation of the new segments in Appendix A. Segment boundary revisions are also proposed for segments 0608 - Village Creek, 0823 - Lewisville Lake, 0839

- Elm Fork Trinity River Below Ray Roberts Lake, 1013 - Buffalo Bayou Tidal, 1107 and 1108 - Chocolate Bayou Tidal and Above Tidal, 1245 - Oyster Creek, and 2003 and 2004 - Aransas River Tidal and Above Tidal. Other segment description revisions are proposed to clarify or to correct clerical errors in existing descriptions of segments found in Appendix A. Proposed changes to Appendix D include the addition of 106 sites with designated aquatic life uses and dissolved oxygen criteria, an addition of a seasonal dissolved oxygen criterion and site-specific flow for Rabbit Creek (tributary to segment 0505), an upgrade of dissolved oxygen criteria from 3.0 mg/L to 5.0 mg/L for Alto Branch and Larisson Creek in segment 0604, a lowering from 4.0 mg/L to 3.0 mg/L of the dissolved oxygen criterion for Jefferson County canals in segment 0702, and an extension of site-specific dissolved oxygen criteria in Bear Creek, South Mayde Creek, and Mason Creek in segment 1014 to include channelized portions of the creeks. Aquatic life use for the portion of Brushy Creek upstream of the segment 1244 - Brushy Creek boundary has been upgraded from intermediate to high based on a recent receiving water assessment using current commission protocols for field collections. Changes to Appendix E include the addition of site specific toxic criteria for 16 sites. Criteria in Appendix E have been recalculated to incorporate EPA conversion factors for metals. The proposed changes in Appendices A-E were made to incorporate results of numerous studies and monitoring and sampling assessments on individual water bodies conducted by the commission, river authorities, and in some cases, individual permittees.

FISCAL NOTE

Bob Orozco, Technical Specialist with Strategic Planning and Appropriations, has determined that for the first five-year period the proposed amendments are in effect there will be significant fiscal implications

for the cities of Fairfield and Yoakum. The proposed amendments may require certain wastewater facilities that discharge into Texas bodies of water to perform additional monitoring and reporting and/or upgrade their facilities. These upgrades will include renovation or construction of new wastewater treatment facilities. The only Texas local units of government that are known to be affected by the proposed amendments are the cities of Fairfield and Yoakum. The only state agencies that are known to have wastewater facilities that discharge into Texas bodies of water and could potentially be affected by the proposed amendments are the Texas Department of Criminal Justice, Texas Parks and Wildlife Department, the Texas Department of Transportation, and certain state universities. The commission staff conducted a review of related wastewater permits for the Texas Department of Criminal Justice, Texas Parks and Wildlife, Texas Department of Transportation, and public colleges and universities. In all cases, permit limits were not at levels that would be affected by the proposed amendments or were not affected by the proposed revisions to standards. In addition, the commission staff did not identify any units of state and local government that would be affected by revisions to toxic criteria or recreational use standards. As a result, no significant fiscal implications are anticipated to state and local units of government, except as noted for the cities of Fairfield and Yoakum, as a result of administration and enforcement of the proposed amendments.

The proposed amendments may require certain units of local government and agricultural and industrial businesses that own and operate wastewater facilities that discharge into Texas bodies of water to perform additional monitoring and reporting and/or upgrade their facilities. These upgrades may range from making changes to treatment processes or renovation or construction of new wastewater treatment facilities. No state agencies are known to be affected by the proposed amendments. Two municipal wastewater facilities, the City of Fairfield and the City of Yoakum wastewater treatment facilities, are

projected to need more stringent treatment limits than are currently imposed in the existing permit in order to meet the proposed site-specific standard. The costs to upgrade these facilities are estimated to be approximately \$1.9 million and \$1.8 million, respectively.

The proposed amendments apply to state, municipal, agricultural, and industrial facilities that discharge wastewater directly into bodies of water in Texas. The proposed amendments may have cost implications associated with revised criteria for toxic substances to protect human health and aquatic life, revised criteria for recreational uses, and revised dissolved oxygen criteria and aquatic-life use for classified and unclassified water segments. Potential costs are associated with substance screening and monitoring and the additional treatment of wastewater which may be needed to meet the standards for water quality. A minimal number of industrial dischargers may have to change or employ new wastewater treatment methods or techniques in order to meet the proposed standards. Cost implications for screening and monitoring are anticipated to be minimal because, in most cases, the screening and monitoring is already being done.

Although the proposed amendments include four new substances and various criteria changes to existing substances, which will result in both increases and decreases in permit limits, there are no anticipated additional costs to facilities or the commission for monitoring these substances because the commission currently screens applications and requires permit holders to monitor for those substances. The four new substances in the proposed amendments are acrylonitrile, atrazine, perchlorate, and 1,3 dichloropropene. However, there are cost implications associated with potential treatment for toxic substances in wastewater.

In the proposed amendments, 27 toxic substances have criteria more stringent than in current rules; 8 toxic substances have criteria less stringent than in current rules; and 34 toxic substances remain unchanged. There are potential additional costs associated with the proposed criteria for the 27 toxic substances with more stringent standards in unclassified segments of water bodies. Where applicable, the costs associated with conforming to toxic standards will be determined by the size and current condition of a treatment facility, the extent of current controls, and the nature of the wastewaters, and the receiving waters. Because of the variability in receiving waters, the number of toxic substances, and the current condition of treatment facilities, an engineering study and design may be required to determine the extent of facility or process changes and associated costs that will be required in order to comply with the proposed requirements. This variability would require a site-specific analysis in order to determine the costs associated with achieving proposed standards for toxic substances. Such site-specific analyses are not available at this time. In order to gain some insight into costs associated with toxic treatment, the commission analyzed current wastewater discharge permits and generalized costs associated with end-of-pipe activated carbon adsorption technology. The review of current wastewater discharge permits indicated that there are approximately 66 industrial wastewater discharges which potentially contain one or more of the organic toxic pollutants for which more stringent criteria are proposed. These 66 discharges represent all industrial discharges in the state which potentially have the pollutants of concern to the extent those pollutants are identified in existing commission databases. The commission staff anticipates that the actual number of discharges that will be affected by the proposed amendments to toxic criteria are much less than the 66 noted above. In most cases, these dischargers will not be affected by the proposed amendments. In those instances where a new or more stringent effluent limit might be required, the effluent limit is expected to be achieved by changes in industrial

processes or changes in operating procedures. Should a discharger be required to construct an additional wastewater treatment system, the commission staff has estimated that construction cost could be as high as \$4.9 million for an added treatment system for discharge of 1 million gallons per day (MGD). Although EPA estimates that such costs may range from approximately \$1.3 million per million gallons of discharge for a 20 MGD treatment facility to \$12.1 million per million gallons of discharge for a .01 MGD treatment facility, the commission staff anticipates that the upper ranges are unlikely to be required. These estimates are based upon the use of end-of-pipe activated carbon adsorption technology, which is only one possible type of treatment to reduce the concentration of toxic pollutants. The commission recognizes that other types of treatment are likely, each with a unique cost associated with site-specific circumstances. This fiscal note does not purport to mandate a method of treatment nor to provide all of the costs some facilities may incur in process or facility upgrades to meet the requirements in the proposed amendments. The commission invites public comment concerning direct costs attributable to the proposed amendments.

Unclassified perennial water bodies are assigned a presumed high aquatic life use and associated dissolved oxygen criteria in the absence of site-specific information. In the proposed amendments to Appendix D, 55 of the 77 unclassified perennial water bodies have proposed standards based on the most recent site-specific assessments and testing which more accurately describe the ambient conditions of the water segment, are less stringent, and are still protective of water quality. Each of the 199 facilities that currently discharge into the unclassified water bodies was evaluated to determine if substantial wastewater treatment upgrades were needed to meet proposed site-specific standards. For this evaluation, commission staff modeled in-stream dissolved oxygen to determine treatment levels

necessary to meet the proposed standard, and if necessary, estimated potential upgrade costs using EPA construction costs for wastewater treatment plants. Two wastewater facilities, the City of Fairfield and the City of Yoakum facilities, are projected to need more stringent treatment limits than are currently imposed in the existing permit in order to meet the proposed site-specific standard. The costs to upgrade these facilities are estimated to be approximately \$1.9 million and \$1.8 million, respectively. If the estimated \$1.9 million capital costs to upgrade the Fairfield wastewater facility were capitalized, annualized, and divided evenly among ratepayers, rates are estimated to increase by approximately \$13 per month (assuming 2.5 members per family and a population of 3391). If the estimated \$1.8 million capital costs to upgrade the Yoakum wastewater facility were capitalized, annualized, and divided evenly among ratepayers, rates are estimated to increase by approximately \$6.36 per month (assuming 2.5 members per family and a population of 6364).

Estimates were also completed to determine potential costs to dischargers if permittees are required to meet the current presumed high aquatic life use criteria. It was determined that the adoption of the proposed amendments would remove adverse fiscal impacts to certain permittees by replacing presumed standards with more accurate site-specific standards. The analysis identified five wastewater dischargers that would have to complete substantial upgrades to their facilities if the proposed amendments are not adopted. These five dischargers are not currently required to meet a high aquatic life use because the presumed aquatic life use for the receiving water at the time of their last permit application was “intermediate”. Information recently provided the commission indicates that the receiving water body is “perennial” rather than “intermittent”, so the actual applicable presumed use is high aquatic life use. The estimated cost to upgrade each of these facilities for high aquatic life use

ranged from approximately \$300,000 to \$4 million. These costs are avoided if the proposed amendments are adopted. The combined avoided costs for the five facilities totaled \$6.8 million. In addition, if the current high aquatic life use and associated 5 milligrams per liter of dissolved oxygen criteria remained in place for Segment 1014, the 58 facilities that discharge to Buffalo Bayou would receive a “No Discharge” recommendation and would not be permitted to discharge into that segment. It is anticipated that the costs to transport or pump the effluent to another area for disposal would be economically extremely adverse. This situation is also avoided by adopting the proposed site-specific standards.

Site-specific metals criteria proposed for 16 sites in Appendix E of Chapter 307 are also less stringent than existing criteria. The site-specific criteria in the proposed rule are expected to avoid the imposition of inappropriately stringent standards criteria and the associated upgrade costs for 16 industrial discharge permits.

PUBLIC BENEFIT

Mr. Orozco has also determined that for each year of the first five years the proposed amendments to Chapter 307 are in effect, the public benefit anticipated from enforcement of and compliance with the proposed amendments will be increased protection of public drinking water supplies and aquatic life resources, an improved regulatory process for permitted wastewater discharges, and potentially improved quality of the surface water resources of the state.

SMALL BUSINESS AND MICRO-BUSINESS ANALYSIS

There are no significant fiscal implications anticipated for small and micro-businesses as a result of implementing the proposed amendments. Few small or micro-businesses hold TPDES permits with the commission. Small and micro-businesses ordinarily dispose of wastewater by conveyance into city sewer systems. Facilities that discharge into municipal waste systems are required to pre-treat their waste prior to discharge. Complying with more stringent water quality standards is the responsibility of the city holding the TPDES permit. Since the revisions to the toxic criteria are not expected to affect municipalities, it is anticipated that small and micro-businesses will not be directly affected by the proposed amendments.

Small and micro-businesses served by municipal or commercial wastewater facilities may incur indirect additional costs from increased service rates from local governments or other operators of treatment facilities who must recover increased wastewater treatment costs from their customers. These costs are not anticipated to be significant. Because of the variability in treatment costs and the variability in facility characteristics and rates, the costs to individual customers would require a case-by-case analysis for each customer. The commission staff anticipates that in most cases, the fiscal impact of the proposed amendments will be minimal. If facility upgrade costs are capitalized and annualized, the effect on wastewater ratepayers should be minimal if the customer base is of a moderate size. For smaller cities such as Fairfield and Yoakum, the average additional costs per rate payer per month are not anticipated to be significant. If the estimated \$1.9 million capital costs to upgrade the Fairfield Wastewater Treatment Plant were capitalized, annualized, and divided evenly among ratepayers, rates are estimated to increase by approximately \$13 per month (assuming 2.5 members per family and a population of 3391). If the estimated \$1.8 million capital costs to upgrade the Yoakum wastewater

facility were capitalized, annualized, and divided evenly among ratepayers, rates are estimated to increase by approximately \$6.36 per month (assuming 2.5 members per family and a population of 6364).

DRAFT REGULATORY IMPACT ANALYSIS

The commission has reviewed the proposed rulemaking in light of the regulatory analysis requirements of Texas Government Code §2001.0225, and has determined that the rulemaking may meet the definition of a major environmental rule as defined in that statute. “Major environmental rule” means a rule the specific intent of which is to protect the environment or reduce risks to human health from environmental exposure and that may adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state. The proposed amendments to Chapter 307 will require 2 cities and may require certain agricultural, and industrial wastewater dischargers to change or employ new treatment methods or techniques in order to comply with the proposed standards. These changes or methods may range from developing new techniques or changing best management practices to renovating, expanding, or building an entirely new treatment facility. The proposed rules are intended to protect the environment or reduce risks to human health and safety from environmental exposure and may have adverse effects on certain wastewater dischargers which could be considered a sector of the economy. Although the proposed amendments may meet the definition of a major environmental rule as defined in the act, it does not meet any of the four applicability requirements listed in §2001.0225(a) which states that this section applies only to a major environmental rule, the result of which is to:

1. exceed a standard set by federal law, unless the rule is specifically required by state law;

2. exceed an express requirement of state law, unless the rule is specifically required by federal law;
3. exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government to implement a state and federal program or;
4. adopt a rule solely under the general powers of the agency instead of under a specific state law.

Specifically, the standards and requirements within this proposal were developed in order to conform to the Federal Clean Water Act and the Texas Water Code. The proposed amendments do not exceed a standard set by federal law, exceed an express requirement of state law, nor exceed a requirement of a delegation agreement. The proposed amendments were not developed solely under the general powers of the agency but were specifically developed to meet water quality standards established under federal and state law. In addition, the proposed standards are being proposed under authority of the Texas Water Code, which authorizes the commission to set water quality standards by rule. The code directs the commission to consider the existence and effects of nonpoint source pollution, toxic materials, and nutrient loading in developing water quality standards. The commission invites public comment on the draft regulatory impact analysis.

TAKINGS IMPACT ANALYSIS

The commission has prepared a takings impact assessment for these rules pursuant to Texas Government Code Annotated, §2007.043. The following is a summary of that assessment. The Texas Surface Water Quality Standards (30 TAC Chapter 307) establish instream water quality standards for Texas streams, rivers, lakes, estuaries, and other waterbodies such as wetlands. The commission is

required to establish water quality standards in Texas Water Code, §26.023. The Federal Clean Water Act requires states to publicly review and revise the state's surface water quality standards every three years. The current proposed revisions will satisfy federal requirements for a triennial review. The adjustments of criteria for dissolved metals and consideration of new procedures for human health criteria are needed to incorporate new EPA requirements. These revised criteria will be more protective of human health and provide a public benefit. The site-specific standards are needed to incorporate new sampling data and to establish the appropriate revisions in the rule so that permit issues related to specific waterbodies may be resolved. Site-specific standards more accurately describe the ambient quality of the water body. These site-specific standards also provide more accurate permit requirements that are protective of human health, in most cases economically affordable, and enhances water quality.

The specific purpose of the proposed action is to satisfy state statute requirements, §26.023 Texas Water Code, and Federal Clean Water Act, §303(d), requirements, and to more accurately assess water quality in the state and revise requirements to protect human health and water quality. The proposed rules would substantially advance this stated purpose by adopting water quality criteria and requirements that are supported by site-specific studies, federal and state research, and statewide monitoring and sampling data. Promulgation and enforcement of these rules will not burden private real property which is the subject of the rules because the proposed amendments revising the state's surface water quality standards do not limit or restrict a person's rights in private real property.

The executive director has reviewed the proposed rulemaking and found that the proposal is a rulemaking that will affect an action/authorization identified in the Coastal Coordination Act Implementation Rules, 31 TAC, §505.11, and will, therefore, require that applicable goals and policies of the Coastal Management Plan (CMP) be considered during the rulemaking process.

The commission has prepared a consistency determination for the proposed rules pursuant to 31 TAC, §505.22 and has found the proposed rulemaking is consistent with the applicable CMP goals and policies. The following is a summary of that determination. The proposed rulemaking would be consistent with the CMP goal of protecting, preserving, restoring and enhancing the diversity, quality, quantity and functions, and values of coastal natural resources by establishing standards and criteria for instream water quality for Texas streams, rivers, lakes, estuaries, and other waterbodies such as wetlands. These proposed water quality standards and criteria will provide parameters for permitted discharges that will protect, preserve, restore and enhance the quality, functions and values of coastal natural resources. The proposed rulemaking will also provide for clearer and more protective conditions for variances that will ensure sound management of all coastal resources by allowing for compatible economic development and multiple human uses of the coastal zone. These variance conditions will allow dischargers an opportunity to examine options for upgrades while maintaining water quality that will allow for human uses of the coastal waters.

The proposed rulemaking will require wastewater discharge permit applicants to provide information and monitoring data to the commission so that the commission may make an informed decision in authorizing the discharge permit and ensuring that the authorized activities in the permit comply with all

applicable requirements, thus making the rulemaking consistent with the administrative policies of the CMP. The proposed rulemaking also provides clarity and identifies the circumstances in which the commission will consider and grant variances from the standards.

The proposed rulemaking considers information gathered through the yearly assessments of water quality in the commission's Water Quality Inventory to prioritize those coastal waters for studies and analysis in reviewing and revising the state's surface water quality standards. The standards are established to protect designated uses of coastal waters including protection of uses for recreational purposes and propagation and protection of terrestrial and aquatic life. The proposed rulemaking is consistent with the CMP's policies for discharges of municipal and industrial wastewater to coastal waters and how they relate to specific activities and coastal natural resource areas.

The proposed revisions to §307.2, relating to Description of Standards, §307.3, relating to Definitions and Abbreviations, §307.4, relating to General Criteria, §307.5, relating to Antidegradation, §307.6, relating to Toxic Materials, §307.7, relating to Site-specific Uses and Criteria, §307.8, relating to Application of Standards and Appendices A-E as they pertain to designated tidal segments within the CMP boundary, will need to be submitted to the Coastal Coordination Council for recertification.

PUBLIC HEARING

A public hearing on the proposal will be held March 21, 2000 at 10:00 a.m. in Room 201S of the commission Building E, located at 12100 Park 35 Circle, Austin. The hearing is structured to receive oral or written comments by interested parties. Individuals may present oral statements, when called

upon, in order of registration. Open discussion will not occur during the hearing; however, a commission staff member will be available to discuss the proposal 30 minutes prior to the hearing and will answer questions before and after the hearing.

PUBLIC COMMENT PERIOD

Written comments on the proposal should refer to Rule Log No. 98055-307-WT and may be submitted to Bettie Bell, Texas Natural Resource Conservation Commission, Office of Environmental Policy, Analysis, and Assessment, MC 205, P.O. Box 13087, Austin, Texas 78711-3087, (512) 239-6087. Comments may be faxed to (512) 239-5687, but must be followed by the submission and receipt of the written comments within three working days of when they were faxed. Written comments must be received by 5:00 p.m., March 31, 2000. For further information concerning this proposal, please contact James Davenport, Texas Natural Resource Conservation Commission, Water Quality Assessment Section, at (512) 239-4585.

STATUTORY AUTHORITY

These amendments are proposed under the Texas Water Code, §26.023, which provides the Commission with the authority to make rules setting water quality standards for all waters in the state, and under the Texas Water Code, §5.103, which authorizes the commission to adopt any rules necessary to carry out its powers and duties under the Water Code and other laws of this state.

No other codes or statutes will be affected by this proposal.

Chapter 307: Texas Surface Water Quality Standards

§307.2 - 307.10

§307.2. Description of Standards.

(a) Contents of the Texas Surface Water Quality Standards.

(1) - (9) (No change.)

(10) Section 307.10 of this title (relating to Appendices A - E) lists site-specific standards and supporting information for classified segments (Appendices A - C), partially classified water bodies [waterbodies] (Appendix D), and site-specific criteria that may be derived for any water [waters] in the state (Appendix E). Specific appendices are as follows:

(A) - (C) (No change.)

(D) Appendix D - Site-specific Receiving Water Assessments; and, [.]

(E) (No change.)

(b) - (c) (No change.)

(d) Modification of standards.

(1) - (2) (No change.)

(3) The narrative provisions, designated uses, and numerical criteria of the Texas Surface Water Quality Standards may be amended for a specific water body [waterbody] to account for local conditions. A site-specific standard is an explicit amendment to this title, Chapter 307 (Texas Surface Water Quality Standards), and adoption of a site-specific standard requires the procedures for public notice and hearing established under the Texas Water Code, §26.024 and §26.025. An amendment which establishes a site-specific standard will require a use-attainability analysis which demonstrates that reasonably attainable water-quality related uses will be protected. Upon adoption, site-specific amendments to the standards will be listed in §307.10 of this title (relating to Appendices A - E).

(4) Factors which may justify the development of site-specific standards are described in §307.4 of this title (relating to General Criteria), §307.6 of this title (relating to Toxic Materials), §307.7 of this title (relating to Site-specific Uses and Criteria), and §307.8 of this title (relating to Application of Standards). [When preliminary evidence indicates that a site-specific standards amendment is appropriate, the commission may allow a temporary variance to the water quality standards. A temporary variance is only applicable to an existing discharge facility. A permittee may apply for a temporary variance prior to or during the permit application process. The temporary variance request shall be included in the public notice for the permit application, and the request may be considered in any public hearing on the permit application. The temporary variance must have the

approval of the Commission before issuance of a final permit. A temporary variance for an NPDES permit will also require approval by the EPA. The permit shall contain interim limits based upon the variance approval, and final limits based upon existing water quality standards. A variance shall not exceed a time period of three years. A temporary variance may be extended to allow additional time for a site-specific standard to be adopted in this title. This extension can be granted only after a site-specific study that supports a standards change has been completed. If the commission adopts the proposed site-specific standard prior to the expiration of the variance period, then the permit may be amended to meet the revised water quality standards. If the commission does not adopt the proposed site-specific standard prior to the expiration of the variance period, then the final effluent limits based on existing water quality standards will remain in effect, but the permit may be amended to include a permit schedule to meet standards in accordance with subsection (f) of this section.]

(5) Temporary variance. When preliminary evidence indicates that a site-specific standards amendment is appropriate, the commission may allow a temporary variance to the water quality standards in a permit for a discharge of wastewater. [Factors which may justify the development of site-specific standards are described in §307.4 of this title (relating to General Criteria), §307.6 of this title (relating to Toxic Materials), §307.7 of this title (relating to Site-specific Uses and Criteria), and §307.8 of this title (relating to Application of Standards).]

(A) A temporary variance is only applicable to an existing discharge.

(B) A permittee may apply for a temporary variance prior to or during the permit application process. The temporary variance request shall be included in the public notice for the permit application, and the request may be considered in any public hearing on the permit application.

(C) A temporary variance for a TPDES permit will also require review and approval by the EPA during the permitting process.

(D) The permit shall contain effluent limitations that preclude degradation of existing water quality, and the term of the permit shall not exceed three years. Effluent limitations that are needed to meet the existing standards will be listed in the permit and will go into effect immediately as final permit effluent limitations in the succeeding permit, unless the permittee fulfills the requirements of the conditions for the variance in the permit.

(E) When the permittee has complied with the terms of the conditions in the temporary variance, then the succeeding permit may include a permit schedule to meet standards in accordance with subsection (f) of this section. The succeeding permit may also extend the temporary variance in accordance with subsection (f) of this section in order to allow additional time for a site-specific standard to be adopted in this title. This extension can be granted only after a site-specific study that supports a standards change has been completed.

(F) Site-specific standards which are developed under a temporary variance will be expeditiously proposed and publicly considered for adoption at the earliest opportunity.

(e) (No change.)

(f) Permit schedules to meet standards. Upon permit amendment or permit renewal, the executive director [commission] may establish interim effluent limitations [discharge limits] to allow a permittee time to modify effluent quality in order to attain final effluent limitations [limits]. The duration of any interim effluent limitations [limit] may not be longer than three years from the effective date of the permit issuance, except in accordance with a temporary variance as described in subsection (d)(5) of this section. [An interim limit may be extended to allow additional time for a site-specific standard to be adopted in this title. This extension can be granted only after a site-specific study that supports a standards change has been completed, and the extension will only be granted for effluent limits that are affected by the site-specific standard under consideration.]

(g) Temporary standards. Where a criterion is not attained and cannot be reasonably attained for one or more of the reasons listed in 40 CFR 131.10(g), then a temporary standard for specific water bodies may be adopted in §307.10 of this title (relating to Appendices A - E) as an alternative to changing uses. A criterion which is established as a temporary standard must be adopted in accordance with the provisions of subsection (d)(3) of this section. A temporary standard shall identify the water body or water bodies where the criterion applies. A temporary standard will identify the numerical criteria that will apply during the existence of the temporary standard. A temporary standard does not exempt any discharge from compliance with applicable technology-based effluent limits. A temporary standard shall expire no later than the completion of the next triennial revision of the Texas Surface Water Quality Standards. When a temporary standard expires, subsequent discharge permits will be

issued to meet the applicable existing water quality standards. If a temporary standard is sufficiently justified in accordance with the provisions of subsection (b)(3) of this section, it can be renewed during revisions of the Texas Surface Water Quality Standards. A temporary standard cannot be established which would impair an existing use.

§307.3. Definitions and Abbreviations.

(a) Definitions. The following words and terms, when used in this chapter, shall have the defined meanings, unless the context clearly indicates otherwise:

(1) (No change.)

(2) **Ambient** - Refers to the existing water quality in a particular water body [waterbody].

(3) **Attainable use** - A use which can be reasonably achieved by a water body in accordance with its physical, biological, and chemical characteristics. Guidelines for the determination and review of attainable uses are provided in the standards implementation procedures.

(4)[(3)] **Background** - Refers to the water quality in a particular water body [waterbody] that would occur if that water body [waterbody] were relatively unaffected by human activities.

(5) [(4)] **Bedslope** - Stream gradient, or the extent of the drop in elevation encountered as the stream flows downhill. One measure of bedslope is the elevation decline in meters over the stream distance in kilometers.

(6) [(5)] **Best management practices** - Schedules of activities, maintenance procedures, and other management practices to prevent or reduce the pollution of water in the state from point and nonpoint sources, to the maximum extent practicable. Best management practices also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. [A practice or combination of practices determined to be the most practicable means of preventing or reducing, to a level compatible with water quality goals, the amount of pollution generated by point and nonpoint sources.]

(7) [(6)] **Bioaccumulative toxic** - A chemical which is taken up by aquatic organisms from water directly or through the consumption of food containing the chemicals.

(8) **Bioconcentration factor** - A unitless value describing the degree to which a chemical can be concentrated in the tissues of an organism in the aquatic environment. The bioconcentration factor is the ratio of a chemical's concentration in the tissue of an organism compared to that chemical's average concentration in the surrounding water.

(9) **Biological integrity** - The species composition, diversity, and functional organization of a community of organisms that contributes to overall stability and ecological vitality.

(10)[(7)] **Chronic toxicity** - Toxicity which continues for a long-term period after exposure to toxic substances. Chronic exposure produces sub-lethal effects, such as growth impairment and reduced reproductive success, but it may also produce lethality. The duration of exposure applicable to chronic toxicity is normally seven days or more.

(11) **Classified** - Refers to a water body that is listed and described in Appendix A or Appendix C in §307.10 of this title (relating to Appendices A - E). Site-specific uses and criteria for classified water bodies are listed in Appendix A.

(12)[(8)] **Commission** - The Texas Natural Resource Conservation Commission.

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

(14)[(10)] **Criteria** - Water quality conditions which are to be met in order to support and protect desired uses.

(15)[(11)] **Critical low-flow** - Low-flow condition (e.g., 7Q2 flow) below which some standards do not apply. The impacts of permitted discharges are analyzed at critical low-flow.

(16) **Designated use** - A use which is assigned to specific water bodies in Appendix A or in Appendix D in §307.10 of this title. Typical uses which may be designated for specific water bodies

include domestic water supply, categories of aquatic life use, recreation categories, and aquifer protection.

(17)[(12)] **Discharge permit** - A permit issued by the state or a federal agency to discharge treated effluent or cooling water into waters of the state.

(18)[(13)] **EC₅₀** - The concentration of a toxicant that produces an adverse effect on 50% of the organisms tested in a specified time period.

(19) ***E. coli*** - *Escherichia coli*, a subgroup of fecal coliform bacteria that is present in the intestinal tracts and feces of warm-blooded animals. It is used as an indicator of potential pathogens.

(20)[(14)] **Effluent** - Wastewater discharged from any point source prior to entering a water body [waterbody].

(21) **Enterococci** - A subgroup of fecal streptococci bacteria (mainly *Streptococcus faecalis* and *Streptococcus faecium*) that is present in the intestinal tracts and feces of warm-blooded animals. It is used as an indicator of potential pathogens.

(22)[(15)] **Epilimnion** - The upper mixed layer of a lake (including impoundments, ponds, and reservoirs).

(23) Existing use - A use which is currently being supported by a specific water body and which was attained on or after November 25, 1975.

(24)[(16)] Fecal coliform - A [that]portion of the coliform bacteria group which is present in the intestinal tracts and feces of warm-blooded animals; heat tolerant bacteria from other sources can sometimes be included. It is used as an indicator of potential pathogens.

(25)[(17)] Freshwaters - Inland waters which exhibit no measurable elevation changes due to normal tides.

(26) General contact recreation - A subcategory of contact recreation that is descriptive of areas where limited contact recreation can occur when conditions of flow, depth, and weather are suitable.

(27)[(18)] Halocline - A vertical gradient in salinity under conditions of density stratification that is usually recognized as the point where salinity exhibits the greatest difference in the vertical direction.

(28)[(19)] Harmonic mean flow - A measure of mean flow in a water course which is calculated by summing the reciprocals of the individual flow measurements, dividing this sum by the number of measurements, and then calculating the reciprocal of the resulting number.

(29) **High-use contact recreation** - A subcategory of contact recreation that is descriptive of areas where contact recreation is common.

(30) **Incidental fishery** - A level of fishery which applies to water bodies that are not considered to have a sustainable fishery but which have an aquatic life use of limited, intermediate, high, or exceptional.

(31)[(20)] **Industrial cooling impoundment** - An impoundment[s] which is owned or operated by, or in conjunction with, the water rights permittee, and which is designed and constructed for the primary purpose of reducing the temperature and removing heat from an industrial effluent.

(32)[(21)] **Intermittent stream** - A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a 7Q2 flow of less than 0.1 ft³/s is considered intermittent.

(33) **Intermittent stream with perennial pools** - An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 ft³/s.

(34)[(22)] **LC₅₀** - The concentration of a toxicant that is lethal (fatal) to 50% of the organisms tested in a specified time period.

[(23) **Marine waters** - Coastal waters which have measurable elevation changes due to normal tides. Marine waters are considered to be saltwater for purposes of standards application. In the absence of tidal information, marine waters are generally considered to be coastal waters which typically have salinities of two parts per thousand or greater in a significant portion of the water column.]

(35) [(24)] **Method detection limit** - The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte. The method detection limit (MDL) is estimated in accordance with 40 CFR [Code of Federal Regulations,]136, Appendix B.

(36)[(25)] **Minimum analytical level** - The lowest concentration at which a particular substance can be quantitatively measured with a defined accuracy and precision level, using approved analytical methods. The minimum analytical level is not the published method detection limit for an EPA-approved analytical method, which is based on laboratory analysis of the substance in reagent (distilled) water. The minimum analytical level is based on analyses of the analyte in the matrix of concern (i.e., wastewater effluents). The executive director [commission] will establish general minimum analytical levels that will be applicable when information on matrix-specific minimum analytical levels is unavailable.

(37)[(26)] **Mixing zone** - The area contiguous to a discharge where mixing with receiving waters takes place and where [which may not meet] certain criteria applicable to the receiving water can be exceeded, as long as conditions of acute toxicity to aquatic organisms are prevented.

[(27) **No significant aquatic life use** - The instream use that is typically assigned to a waterbody, such as an intermittent stream, which is not appropriate for an aquatic life use category of limited or greater. There can be some aquatic life present in a waterbody which is designated as having no significant aquatic life use. Basic water quality standards - such as the general criteria in §307.4 of this title, the numerical acute aquatic life criteria in §307.6(c) of this title, and the biomonitoring requirements to preclude acute toxicity to aquatic life in §307.6(e) of this title - apply to waterbodies with no significant aquatic life use.]

(38)[(28)] **Noncontact recreation** - Aquatic recreational [Recreational] pursuits not involving a significant risk of water ingestion; including fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity.

(39)[(29)] **Nonpersistent toxic** - A toxic substance that readily degrades in the aquatic environment, exhibits a half-life of less than 96 hours, and does not have a tendency to accumulate in organisms.

(40)[(30)] **Oyster waters** - Waters producing edible species of clams, oysters, or mussels.

(41)[(31)] **Persistent toxic** - A toxic substance that is not readily degraded and exhibits a half-life of 96 hours or more in an aquatic environment.

(42) **Pollutant** - Dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, filter backwash, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into any water in the state. The term “pollutant” does not include tail water or runoff water from irrigation or rainwater runoff from cultivated or uncultivated rangeland, pastureland, or farmland.

(43) **Point source** - Any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants or wastes are or may be discharged into or adjacent to any water in the state.

(44) **Presumed use** - A use which is assigned to generic categories of water bodies (such as perennial streams). Presumed uses are superceded by designated uses for individual water bodies in Appendix A or Appendix D of §307.10 of this title.

(45) **Public drinking water supply** - A water body which provides water to a public water system as defined in 30 TAC, Chapter 290 of this title (relating to Public Drinking Water).

(46) **Saltwater** - A coastal water which has a measurable elevation change due to normal tides. In the absence of tidal information, saltwater is generally considered to be a coastal water which typically has a salinity of two parts per thousand or greater in a significant portion of the water column.

(47)[(32)] **Salinity** - The total dissolved solids in water after all carbonates have been converted to oxides, all bromide and iodide have been replaced by chloride, and all organic matter has been oxidized. For most purposes, salinity is considered equivalent to total dissolved salt content. Salinity is normally expressed in parts per thousand.

(48) **Seagrass propagation** - A water-quality related use which applies to saltwater where significant stands of submerged seagrass occur.

(49) **Segment** - A water body or portion of a water body which is individually defined and classified in the Texas Surface Water Quality Standards. A segment is intended to have relatively homogeneous chemical, physical, and hydrological characteristics. A segment provides a basic unit for assigning site-specific standards and for applying water quality management programs of the commission. Classified segments may include streams, rivers, bays, estuaries, wetlands, lakes, or reservoirs.

(50)[(33)] **Settleable solids** - The volume or weight of material which will settle out of a water sample in a specified period of time.

(51)[(34)] **Seven-day, two-year low-flow (7Q2)** - The lowest average stream flow for seven consecutive days with a recurrence interval of two years, as statistically determined from historical data. As specified in §307.8 of this title, some water quality standards do not apply at stream flows which are less than the 7Q2 flow. [It is the flow used for determining the allowable discharge load to a stream]

(52)[(35)] **Shellfish** - Clams, oysters, mussels, crabs, crayfish, lobsters, and shrimp.

(53) Significant aquatic life use - A broad characterization of aquatic life which indicates that a subcategory of aquatic life use (limited, intermediate, high, or exceptional) is applicable. Some aquatic life is expected to be present even in water bodies which are not designated for specific categories of aquatic life use. Some provision to protect aquatic life applies to any water body in the state whether an aquatic life use is assigned or not, except where specifically exempted in §307.6 of this title (relating to Toxic Material) or §307.8 of this title (relating to Application of Standards). These provisions include the general criteria in §307.4 of this title (relating to General Criteria), the numerical acute aquatic life criteria in §307.6(c) of this title, and the whole effluent toxicity requirements to preclude acute toxicity to aquatic life in §307.6(e) of this title.

(54)[(36)] **Standard Methods for the Examination of Water and Wastewater** - A document describing sampling and analytical procedures, which is published by the American Public Health Association, American Water Works Association, and Water Environment Federation. The most recent edition of this document is to be followed whenever its use is specified by these rules.

(55)[(37)] **Standards** - The designation of water bodies [waterbodies] for desirable uses and the narrative and numerical criteria deemed necessary to protect those uses.

(56)[(38)] **Standards implementation procedures** - Procedures entitled *Procedures to Implement the Texas Surface Water Quality Standards in TPDES Discharge Permits [Implementation of the Texas Natural Resource Conservation Commission Standards via Permitting]*,²[.] which are adopted by the commission and approved by EPA as part of the State Continuing Planning Process.

(57) **Storm water** - Rainfall runoff, snow melt runoff, surface runoff, and drainage.

(58) **Storm water discharge** - A point source discharge which is composed entirely of storm water associated with an industrial activity, a construction activity, a discharge from a municipal separate storm sewer system, or other discharge designated by the commission. This term does not include return flows from irrigated agriculture or agriculture storm water runoff.

(59)[(39)] **Stream order** - A classification of stream size, where the smallest, unbranched tributaries of a drainage basin are designated first order streams. Where two first order streams join, a second order stream is formed; and where two second order streams join, a third order stream is formed, etc. For purposes of water quality standards application, stream order is determined from USGS topographic maps with a scale of 1:24,000.

(60)[(40)] **Surface water in the state** - Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state, and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or nonnavigable, and including the beds and banks of all watercourses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water [waters] in the state.

(61)[(41)] **Sustainable Fisheries** - Descriptive of water bodies [waterbodies] which potentially have sufficient fish production or fishing activity to create significant long-term human consumption of fish. Sustainable fisheries include perennial streams and rivers with a stream order of three or greater; lakes and reservoirs greater than or equal to 150 acre-feet and/or 50 surface acres; all bays, estuaries, and tidal rivers. Water bodies [waterbodies] which are presumed to have sustainable fisheries include all designated segments listed in Appendix A unless specifically exempted.

(62) Tidal - Descriptive of coastal waters which are subject to the ebb and flow of tides. For purposes of standards applicability, tidal waters are considered to be saltwater. Classified tidal waters include all bays and estuaries with a segment number that begins with 24xx, all streams with the word tidal in the segment name, and the Gulf of Mexico.

(63) **To discharge** - Includes to deposit, conduct, drain, emit, throw, run, allow to seep, or otherwise release or dispose of, or to allow, permit, or suffer any of these acts or omissions.

(64) **Total Maximum Daily Load (TMDL)** - The total amount of a pollutant that a water body can assimilate and still meet the Texas Surface Water Quality Standards.

(65)[(42)] **Total dissolved solids** - The amount of material (inorganic salts and small amounts of organic material) dissolved in water and commonly expressed as a concentration in terms of milligrams per liter. The term is equivalent to the term filterable residue, as used in the publication entitled, *Standard Methods for the Examination of Water and Wastewater*.

(66)[(43)] **Total suspended solids** - Total suspended matter in water, which is commonly expressed as a concentration in terms of milligrams per liter. The term is equivalent to nonfilterable residue, as used in the publication entitled, *Standard Methods for the Examination of Water and Wastewater*.

(67)[(44)] **Total toxicity** - Toxicity as determined by exposing aquatic organisms to samples or dilutions of instream water or treated effluent. Also referred to as whole effluent toxicity or biomonitoring.

(68)[(45)] **Toxicity** - The occurrence of adverse effects to living organisms due to exposure to toxic materials. Adverse effects caused by conditions of temperature and dissolved oxygen are

excluded from the definition of toxicity. With respect to the provisions of §307.6(e) of this title (relating to Toxic Materials), which concerns total toxicity and biomonitoring requirements, adverse effects caused by concentrations of dissolved salts (such as sodium, potassium, calcium, chloride, carbonate) in source waters are excluded from the definition of toxicity. Source water is defined as surface water or groundwater that is used as a public water supply or industrial water supply (including a cooling-water supply). Source water does not include brine water that is produced during the extraction of oil and gas, or other sources of brine water that are substantially uncharacteristic of surface waters in the area of discharge. In addition, adverse effects caused by concentrations of dissolved salts which are added to source water by industrial processes are not excluded from the requirements of §307.6(e) of this title, except as specifically noted in §307.6(e)(2)(B) of this title, which concerns requirements for toxicity testing of 100% effluent. This definition of toxicity does not affect the standards for dissolved salts in this chapter other than §307.6(e) of this title. The standards implementation procedures contain provisions to protect surface waters from adverse effects of dissolved salts and methods to address the effects of dissolved salts on total toxicity tests.

(69)[(46)] **Toxicity biomonitoring** - The determination of total toxicity. Documents which describe procedures for toxicity biomonitoring are cited in §307.6 of this title (relating to Toxic Materials).

(70)[(47)] **Water-effects ratio** - [The quantifiable difference in the toxicity of a substance at an instream site, in comparison to the toxicity that was measured in experiments using laboratory water. The water-effects ratio provides an estimate of the bioavailability and toxicity of a substance in

a particular waterbody. It may be used to establish site-specific criteria for aquatic life protection.]

The water-effects ratio is calculated as the toxic concentration (LC_{50}) of a substance in water at a particular site, divided by the toxic concentration of that substance as reported in lab toxicity tests. The water-effects ratio can be used to establish site-specific criteria to protect aquatic life from toxicity.

The site-specific criterion is equal to the water-effects ratio times the statewide aquatic life criterion in §307.6(c) of this title (relating to Toxic Materials).

(71)[(48)] **Water quality management program** - The commission's overall program for attaining and maintaining water quality consistent with state standards, as authorized under the Texas Water Code, the Texas Administrative Code, and the Clean Water Act, §§106, 205(j), 208, 303(e) and 314 (33 United States Code §§1251 et seq).

(72)[(49)] **Wetland** - An area (including a swamp, marsh, bog, prairie pothole, or similar area) having a predominance of hydric soils that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that under normal circumstances supports the growth and regeneration of hydrophytic vegetation. The term "hydric soil" means soil that, in its undrained condition, is saturated, flooded, or ponded long enough during a growing season to develop an anaerobic condition that supports the growth and regeneration of hydrophytic vegetation. The term "hydrophytic vegetation" means a plant growing in: water or a substrate that is at least periodically deficient in oxygen during a growing season as a result of excessive water content. The term "wetland" does not include irrigated acreage used as farmland; a man-made wetland of less than one acre; or a man-made wetland for which construction or creation commenced on or after August 28, 1989, and

which was not constructed with wetland creation as a stated objective, including but not limited to an impoundment made for the purpose of soil and water conservation which has been approved or requested by soil and water conservation districts. If this definition of wetland conflicts with the federal definition in any manner, the federal definition prevails.

(73) Wetland water quality functions - Attributes of wetlands that protect and maintain the quality of water in the state, which include storm water storage and retention and the moderation of extreme water level fluctuations; shoreline protection against erosion through the dissipation of wave energy and water velocity, and anchoring of sediments; habitat for aquatic life; and removal, transformation, and retention of nutrients and toxic substances.

(74)[(50)] **Zone of initial dilution** - The small area at the immediate point of discharge where initial dilution with receiving waters occurs, and which may not meet certain criteria applicable to the receiving water. A zone of initial dilution is substantially smaller than a mixing zone.

[(51)] **Bioconcentration factor (BCF)** - A unitless value describing the degree to which a chemical can be concentrated in the tissues of an organism in the aquatic environment. The BCF is the concentration of a chemical in one or more tissues of the organism divided by the average exposure concentration the organism received.]

(b) Abbreviations. The following abbreviations apply to this chapter:[.]

(1) - (3) (No change.)

(4) CASN - Chemical Abstracts Service number.

(5)[(4)] CFR - Code of Federal Regulations.

(6)[(5)] Cl⁻¹ - chloride.

(7)[(6)] CR - contact recreation.

(8)[(7)] DO - dissolved oxygen.

(9)[(8)] E - exceptional aquatic life use.

(10)[(9)] EPA - U.S. Environmental Protection Agency.

(11)[(10)] degrees F - Degree(s) Fahrenheit.

(12)[(11)] ft³/s - cubic feet per second.

(13)[(12)] H - high aquatic life use.

(14)[(13)] I - intermediate aquatic life use.

(15)[(14)] IS - industrial water supply.

(16)[(15)] L - limited aquatic life use.

(17)[(16)] MCL - maximum contaminant level (for public drinking water supplies).

(18)[(16)] mg/L - milligrams per liter.

(19)(17) ml - milliliter.

(20) MS4 - municipal separate storm sewer system.

(21)[(18)] N - navigation.

(22)[(19)] NCR - noncontact recreation.

(23)[(20)] NPDES - National Pollutant Discharge Elimination System, as set out in the
Clean Water Act, §402 (33 United States Code 1342).

(24)[(21)] O - oyster waters.

(25)[(22)] PS - public water supply.

(26)[(23)] 7Q2 - seven-day, two-year low-flow.

(27)[(24)] SO_4^{-2} - sulfate.

(28)[(25)] TDS - total dissolved solids.

(29) TMDL - total maximum daily load.

(30) TPDES - Texas Pollutant Discharge Elimination System.

(31) TSS - total suspended solids.

(32)[(26)] USFDA - U.S. Food and Drug Administration.

(33)[(27)] USGS - U.S. Geological Survey.

(34)[(28)] WF - waterfowl habitat.

(35)[(29)] WQM - water quality management.

(36)[(30)] $\mu\text{g/L}$ - micrograms per liter.

(37)[(31)] ZID - zone of initial dilution.

§307.4. General Criteria.

(a) (No change.)

(b) Aesthetic parameters.

(1) - (2) (No change.)

(3) Surface waters shall be essentially free of settleable solids conducive to changes in flow characteristics of stream channels or the untimely filling of surface water in the state. This provision does not prohibit dredge and fill activities which are permitted in accordance with Section 404 and other requirements of the Federal Clean Water Act which provide for the evaluation, minimization, and mitigation of impacts as appropriate. [reservoirs, lakes, and bays]

(4) - (6) (No change.)

(7) Surface waters shall be maintained so that oil, grease, or related residue will not produce a visible film of oil or globules of grease on the surface or coat the banks or bottoms of the watercourse; or cause toxicity to man, aquatic life, or terrestrial life in accordance with subsection (d) of this section [§307.4(d) of this title (relating to General Criteria).]

(c) Radiological substances [parameters]. Radioactive materials shall not be discharged in excess of the amount regulated by Chapter 336 of this title (relating to Radiation Rules).

(d) Toxic substances [parameters]. Surface waters will not be toxic to man from ingestion of water, consumption of aquatic organisms, or contact with the skin, or to terrestrial or aquatic life. Requirements and criteria [Additional standards requirements] for toxic substances [materials] are specified in §307.6 of this title (relating to Toxic Materials). Criteria to protect aquatic life from acute toxicity apply to all surface waters in the state. Criteria to protect aquatic life from chronic toxicity apply to surface waters with a significant aquatic life use of limited, intermediate, high, or exceptional as designated in §307.10 of this title (relating to Appendices A - E) or as determined on a case-by-case basis in accordance with subsection (k) of this section. Toxic criteria to protect human health for consumption of fish apply to waters with a sustainable or incidental fishery, as described in §307.6(d) of this title. Additional criteria apply to water in the state with a public drinking water supply use, as described in §307.6(d) of this title. The general provisions of this subsection do not change specific provisions in §307.8 of this title (relating to Application of Standards) for applying toxic criteria.

(e) Nutrients [Nutrient parameters]. Nutrients from permitted discharges or other controllable sources shall not cause excessive growth of aquatic vegetation which impairs an existing, attainable, or designated use. Site-specific nutrient criteria, nutrient permit limitations, and/or separate rules to control nutrients in individual watersheds will be established where appropriate after notice and opportunity for public participation and proper hearing.

(f) Temperature. Consistent with §307.1 of this title (relating to General Policy Statement) and in accordance with state water rights permits, temperature in industrial cooling lake impoundments and all other surface water in the state shall be maintained so as to not interfere with the reasonable use of such waters. Numerical temperature criteria have not been specifically established for industrial cooling lake impoundments, which in most areas of the state contribute to water conservation and water quality objectives. With the exception of industrial cooling impoundments, temperature elevations due to discharges of treated domestic (sanitary) effluent, and within designated mixing zones, the following temperature criteria, expressed as a maximum temperature differential (rise over ambient) are established: freshwater streams -5 degrees Fahrenheit; freshwater lakes and impoundments - 3 degrees Fahrenheit; tidal river reaches, bay and gulf waters - 4 degrees Fahrenheit in fall, winter, and spring, and 1.5 degrees Fahrenheit in summer (June, July, and August). Additional temperature criteria (expressed as maximum temperatures) for classified segments are specified in Appendix A of §307.10 of this title (relating to Appendices A - E).

(g) Salinity.

(1) Concentrations and the relative ratios of dissolved minerals such as chlorides, sulfates, and total dissolved solids will be maintained such that existing, designated, and attainable uses will not be impaired. [Estuarine salinity criteria have not been established, despite the recognition that proper salinity gradient maintenance is important for the continuation of balanced and desirable populations of estuarine dependent marine life, because weather is the dominant factor influencing salinity gradients in estuarine waters]

(2) Criteria for chlorides, sulfates, and total dissolved solids for classified freshwater segments are specified in Appendix A of §307.10 of this title (relating to Appendices A - E). [Absence of numerical criteria shall not preclude evaluations and regulatory actions based on estuarine salinity, and careful consideration will be given to all activities which may detrimentally affect salinity gradients.]

(3) Salinity gradients in estuaries [Concentrations and the relative ratios of dissolved minerals such as chlorides, sulfates, and total dissolved solids] will be maintained to support the continuation of balanced and desirable populations of estuarine dependent aquatic life. Numerical salinity criteria for Texas estuaries have not been established because of the high natural variability of salinity in estuarine systems, and because long-term studies by state agencies to assess estuarine salinities are still ongoing [such that attainable uses will not be impaired]. Absence of numerical criteria shall not preclude evaluations and regulatory actions based on estuarine salinity, and careful consideration will be given to all activities which may detrimentally affect salinity gradients.

(h) Aquatic life uses and dissolved oxygen. [Dissolved oxygen and aquatic life uses.]

(1) Dissolved oxygen concentrations shall be sufficient to support existing, designated, and attainable aquatic life uses. Aquatic-life use categories and corresponding dissolved oxygen criteria are described in §307.7(b)(3) of this title (relating to Site-specific Uses and Criteria). [Dissolved oxygen criteria for unclassified waters with aquatic life uses will be sufficient to support appropriate aquatic life use categories, in accordance with §307.7 of this title (relating to Site-specific Uses and Criteria).

Perennial streams, rivers, lakes, bays, estuaries, and other appropriate perennial waters which are not specifically listed in Appendix A or D of §307.10 of this title are presumed to have a high aquatic life use and corresponding dissolved oxygen criteria. In accordance with results from statewide ecoregion studies, unclassified perennial streams in southeast and northeast Texas are assigned dissolved oxygen criteria as indicated in §307.7(b)(3)(A)(ii) of this title. Higher uses will be maintained where they are attainable.]

(2) Aquatic life use categories and dissolved oxygen criteria for classified segments are specified in Appendix A of §307.10 of this title. Aquatic life use categories and dissolved oxygen criteria for other specific water bodies are specified in Appendix D of §307.10 of this title. Where justified by sufficient site-specific information, dissolved oxygen criteria which differ from §307.7(b)(3) of this title may be adopted for a particular water body in §307.10 of this title. [Intermittent streams which are not specifically listed in Appendix A or D of §307.10 of this title will maintain a 24-hour dissolved oxygen mean of 2.0 mg/L and an absolute minimum dissolved oxygen concentration of 1.5 mg/L. For intermittent streams with seasonal aquatic life uses, dissolved oxygen concentrations commensurate with the aquatic life uses will be maintained during the seasons in which the aquatic life uses occur. Unclassified intermittent streams with significant aquatic life uses created by perennial pools are presumed to have a limited aquatic life use and corresponding dissolved oxygen criteria. Additional definitions of significant aquatic life, perennial pools, and seasonal uses will be developed in the standards implementation procedures. Higher uses will be maintained where they are attainable.]

(3) Perennial streams, rivers, lakes, bays, estuaries, and other appropriate perennial waters which are not specifically listed in Appendix A or D of §307.10 of this title are presumed to have a high aquatic life use and corresponding dissolved oxygen criteria. In accordance with results from statewide ecoregion studies, unclassified perennial streams in southeast and northeast Texas are assigned dissolved oxygen criteria as indicated in §307.7(b)(3)(A)(ii) of this title. Higher uses will be maintained where they are attainable.

(4) When water is present in the streambed of intermittent streams, a 24-hour dissolved oxygen mean of at least 2.0 mg/L and an absolute minimum dissolved oxygen concentration of 1.5 mg/L will be maintained. Intermittent streams which are not specifically listed in Appendix A or D of §307.10 of this title are considered to not have a significant aquatic life use except as indicated below in this subsection. For intermittent streams with seasonal aquatic life uses, dissolved oxygen concentrations commensurate with the aquatic life uses will be maintained during the seasons in which the aquatic life uses occur. Unclassified intermittent streams with significant aquatic life uses created by perennial pools are presumed to have a limited aquatic life use and corresponding dissolved oxygen criteria. Additional definitions of significant aquatic life, perennial pools, and seasonal uses will be developed in the standards implementation procedures. Higher uses will be maintained where they are attainable.

(i) Aquatic life uses and habitat. Vegetative and physical components of the aquatic environment will be maintained or mitigated to protect existing aquatic life uses. Procedures to protect habitat in permits for dredge and fill activities are specified in Federal Clean Water Act, §404 and in

Title 30 TAC Chapter 279 of this title (relating to Water Quality Certification). [Bacteria. A fecal coliform criterion of not more than 200 bacteria per 100 ml shall apply to all waterbodies not specifically listed in Appendix A of §307.10 of this title (relating to Appendices A - E). Application of this criterion shall be in accordance with §307.7(b)(1) of this title.]

(j) Aquatic recreation. Existing, designated, and attainable uses of aquatic recreation will be maintained, as determined by criteria that indicate the potential presence of pathogens. Categories of recreation and applicable criteria are established in §307.7(b)(1) of this title. General contact recreation is presumed as a use for all water bodies that are not specifically listed in Appendix A of §307.10 of this title. In addition, high-use contact recreation is presumed for lakes and reservoirs and for saltwater bays that are not specifically listed in Appendix A of §307.10 of this title.

(k)(j) Antidegradation. Nothing in this section shall be construed or otherwise utilized to supersede the requirements of §307.5 of this title (relating to Antidegradation).

(l) [(k)] Assessment of unclassified waters. Waters which are not specifically listed in Appendices A or D of §307.10 of this title are designated for the specific uses that are attainable or characteristic of those waters. Upon administrative or regulatory action by the executive director [commission] which affects a particular unclassified water body [waterbody], the characteristics of the affected water body [waterbody] will be reviewed to determine which aquatic life uses are appropriate. Additional uses so determined shall be indicated in public notices for discharge applications. Uses which are not applicable throughout the year in a particular unclassified water body [waterbody] will be

assigned and protected for the seasons in which such uses are attainable. Initial determinations of use shall be considered preliminary, and in no way preclude redeterminations of use in public hearings conducted [by the commission] under the provisions of the Texas Water Code. For unclassified waters where the presumed minimum uses or criteria specified in this section are inappropriate, site-specific standards may be developed in accordance with §307.2(d) of this title (relating to Modification of Standards). Uses and criteria will be assigned in accordance with this section and with §307.7(b)(3) of this title (relating to Aquatic Life). Procedures for assigning uses and criteria are described in the standards implementation procedures.

§307.5. Antidegradation.

(a) Application. The antidegradation policy and implementation procedures set forth in this section shall apply to actions regulated under state and federal authority which would increase pollutant loads to the water in the state. Such actions include authorized wastewater discharges, TMDLs, waste load evaluations, and any other miscellaneous actions, such as those related to man-induced nonpoint sources of pollution, which may impact the water in the state.

(b) Antidegradation policy. In accordance with the Texas Water Code, §26.003, the following provisions establish [it is] the antidegradation policy of the commission. [that:]

- (1) Tier 1. Water [water] quality sufficient to protect existing uses will be maintained.

Categories of existing uses are the same as for designated uses, as defined in §307.7 of this title (relating to Site-specific Uses and Criteria). [;]

(2) Tier 2. No [no] activities subject to regulatory action which would cause degradation of waters which exceed fishable/swimmable quality will be allowed unless it can be shown to the commission's satisfaction that the lowering of water quality is necessary for important economic or social development. Degradation is defined as a lowering of water quality by [to] more than a de minimis extent, but not to the extent that an existing use is impaired. Water quality sufficient to protect existing uses will be maintained. Fishable/swimmable waters are defined as waters which have quality sufficient to support propagation of indigenous fish, shellfish, and wildlife and recreation in and on the water. [;]

(3) Tier 3. Outstanding [outstanding] national resource waters are defined as high quality waters within or adjacent to national parks and wildlife refuges, state parks, wild and scenic rivers designated by law, and other designated areas of exceptional recreational or ecological significance. The quality of outstanding national resource waters will be maintained and protected. [;]

(4) Discharges of pollutants which are authorized by the Texas Water Code or the Federal Clean Water Act will not lower water quality to the extent that the Texas Surface Water Quality Standards are not attained. [authorized wastewater discharges or other activities will not result in the

quality of any water being lowered below water quality standards without complying with federal and state laws applicable to water quality standards amendment;]

(5) Anyone [anyone] discharging wastewater which would constitute a new source of pollution or an increased source of pollution from any industrial, public, or private project or development will be required to provide a level of wastewater treatment consistent with the provisions of the Texas Water Code and the Clean Water Act (33 United States Code 1251 et seq.). As necessary, cost-effective and reasonable best management practices established through the Texas Water Quality Management Program shall be achieved for nonpoint sources of pollution. [;]

(6) Application [application]of antidegradation provisions shall not preclude the commission from establishing modified thermal discharge limitations consistent with the Clean Water Act, §316(a) (33 United States Code 1326).

(c) Antidegradation implementation procedures.

(1) Implementation for specific regulatory activities. [The commission staff will review any wastewater discharge permit application or amendment in accordance with permitting procedures described in the standards implementation procedures. This review will include a preliminary determination of the existing uses of the receiving water. These existing uses will be maintained and protected.]

(A) For TPDES permits for wastewater, the process for the antidegradation review and public coordination is described in the standards implementation procedures.

(B) For federal permits relating to the discharge of fill or dredged material under Federal Clean Water Act, §404, the antidegradation policy and public coordination is implemented through the evaluation of alternatives and mitigation under Federal Clean Water Act, §404(b)(1). State review of alternatives, mitigation, and requirements to protect water quality may also be conducted for federal permits which are subject to state certification, as authorized by Federal Clean Water Act, §401 and conducted in accordance with Chapter 279 of this title (relating to Water Quality Certification).

(C) Other state and federal permitting and regulatory activities which increase pollutant loadings to water in the state are also subject to the provisions of the antidegradation policy as established in §307.5(a) and (b) of this title (relating to Antidegradation).

(2) General provisions for implementing the antidegradation policy. [For proposed permit applications or amendments to discharge into waters exceeding fishable/swimmable quality, the commission staff will preliminarily determine if the discharge is expected to cause a degradation of water quality.]

(A) Tier 1 reviews will ensure that water quality is sufficiently maintained so that existing uses are protected. All pollutants which could cause an impairment of water quality are subject to Tier 1 reviews. If the existing uses and criteria of a potentially affected water body have not been

previously determined, then the antidegradation review will include a preliminary determination of existing uses and criteria. Existing uses will be maintained and protected.

(B)[(3)] Tier 2 reviews apply to all [All] pollutants which could cause degradation of water quality where water quality exceeds levels necessary to support propagation of fish, shellfish, wildlife, and recreation in and on the water (fishable/swimmable quality). Guidance for determining which water bodies exceed fishable/swimmable quality is contained in the standards implementation procedures. [waters which exceed fishable/swimmable quality will be considered in the evaluation of waste discharge permits] For dissolved oxygen, analyses of degradation under Tier 2 will utilize the same critical conditions as are used to protect instream criteria [for permit reviews and waste load evaluations]. For other parameters, appropriate conditions may vary. Conditions for determining degradation will be commensurate with conditions for determining existing uses. The highest water quality sustained since November 28, 1975 (in accordance with EPA Standards Regulation 40 CFR [Code of Federal Regulations Part] 131) defines [define] baseline conditions for determinations of degradation.

(C) Tier 3 reviews apply to all pollutants which could cause degradation of outstanding national resource waters. Outstanding national resource waters are those specifically designated as such in §307 of this title.

(D) When degradation of waters exceeding fishable/swimmable quality is anticipated, a statement that the antidegradation policy will be pertinent to the permit action will be included in the

public notice for the said permit application or amendment. If no degradation is anticipated, the public notice will so state.

(E) Evidence can be introduced in public hearings concerning the determination of existing uses and criteria; the assessment of degradation under Tier 1, Tier 2, and Tier 3; the social and economic justification for lowering water quality; requirements and conditions necessary to preclude degradation; and any other issues which bear upon the implementation of the antidegradation policy.

(F) Interested parties will be given the opportunity to provide comments and additional information concerning the determination of existing uses, anticipated impacts of the discharge, baseline conditions, and the necessity of the discharge for important economic or social development if degradation of water quality is expected under Tier 2.

(G) The antidegradation policy and the general provisions for implementing the antidegradation policy apply to the determination of TMDLs and to waste load evaluations which allow an increase in pollutant loading. If the TMDL or waste load evaluation indicates that degradation of waters exceeding fishable/swimmable quality is expected, the public hearing notice will so state.
Permits which are consistent with an approved TMDL or waste load evaluation under this antidegradation policy will not be subjected to separate antidegradation review for the specific parameters that are addressed by the TMDL or waste load evaluation.

[(4) When degradation of waters exceeding fishable/swimmable quality is anticipated, a statement that the antidegradation policy will be pertinent to the permit action will be included in the public notice for the said permit application or amendment. If no degradation is anticipated, the public notice will so state. The determination of existing use and the probability of degradation are issues upon which evidence can be introduced in permit hearings.]

[(5) Interested parties will be given the opportunity to provide comments and additional information concerning the determination of existing uses, anticipated impacts of the discharge, baseline conditions, and necessity of the discharge for important economic or social development if degradation of water quality is expected. The commissioners will decide after full satisfaction of the intergovernmental coordination and public participation provisions of the continuing planning process if the economic or social development is important enough to allow the degradation.]

[(6) Waste load evaluations conducted by the commission will adhere to the provisions of the antidegradation policy. If the waste load evaluation indicates that degradation of waters exceeding fishable/swimmable quality is expected, the public hearing notice will so state. The commission will not approve any waste load evaluation that would allow degradation of waters exceeding fishable/swimmable quality unless and until it has been demonstrated to the commission that the recommended lower water quality is necessary for important economic or social development. Permits which are consistent with an approved waste load evaluation under this antidegradation policy will not be separately subjected to the antidegradation provisions of this section unless the discharge may cause impacts on the receiving water which were not addressed by the waste load evaluation.]

[(7) Additional implementation procedures for the antidegradation policy are described in the standards implementation procedures.]

§307.6. Toxic Materials.

(a) (No change.)

(b) General provisions.

(1) Water in the state shall not be acutely toxic to aquatic life in accordance with §307.8 of this title [(relating to Application of Standards)].

(2) Water in the state with designated or existing aquatic life uses shall not be chronically toxic to aquatic life, in accordance with §307.8 of this title [(relating to Application of Standards)].

(3) Water in the state shall be maintained to preclude adverse toxic effects on human health resulting from contact recreation, consumption of aquatic organisms, consumption of drinking water or any combination of the three. Water [Waters] in the state with sustainable fisheries and/or public drinking water supply uses will not exceed applicable human health toxic criteria, in accordance with subsection (d) of this section and §307.8 of this title [(relating to Application of Standards)].

(4) Water in the state shall be maintained to preclude adverse toxic effects on aquatic life, [and] terrestrial wildlife, birds, livestock, or domestic animals, resulting from contact, consumption of aquatic organisms, consumption of water, or any combination of the five [three].

(c) Specific numerical aquatic life criteria.

(1) Numerical criteria are established in Table 1 for those specific toxic substances for which adequate toxicity information is available, and which have the potential for exerting adverse impacts on water in the state.

Figure 30 TAC §307.6(c)(1)

(2) - (4) (No change.)

(5) Specific numerical aquatic life criteria for metals and metalloids in Table 1 apply to dissolved concentrations where noted. Dissolved concentrations [(unless otherwise stated), which] can be estimated by filtration of samples prior to analysis, or by converting from total recoverable measurements in accordance with procedures approved by the commission in the latest revision of the standards implementation procedures. Specific numerical aquatic life criteria for non-metallic substances in Table 1 apply to total recoverable concentrations unless otherwise noted.

(6) Specific numerical acute criteria for toxic substances are applicable to all water [waters] in the state except for small zones of initial dilution (ZIDs) at discharge points. Acute criteria may be

exceeded within a ZID and at extremely low streamflow conditions (one-fourth of critical low-flow conditions) in accordance with §307.8 of this title (relating to Application of Standards). [, but] There [there] shall be no lethality to aquatic organisms which move through a ZID, and the sizes of ZIDs are limited in accordance with §307.8 of this title [relating to Application of Standards]. Specific numerical chronic criteria are applicable to all water [waters] in the state with designated or existing aquatic life uses, except inside mixing zones and below critical low-flow conditions, in accordance with §307.8 of this title.

(7) For toxic materials for which specific numerical criteria are not listed in Table 1, the appropriate criteria for aquatic life protection may be derived in accordance with current EPA guidelines for deriving site-specific water quality criteria. When insufficient data are available to use EPA guidelines, the following provisions shall be applied in accordance with this section and §307.8 of this title:

(A) (No change.)

(B) concentrations of non-persistent toxic materials shall not exceed concentrations which are chronically toxic (as determined from appropriate chronic toxicity data or calculated as 0.1 of acute LC_{50} values) to the most sensitive aquatic species [organisms]; $LC_{50} \times (0.1) =$ chronic criteria;

(C) concentrations of persistent toxic materials that do not bioaccumulate shall not exceed concentrations which are chronically toxic (as determined from appropriate chronic toxicity data or calculated as 0.05 of LC_{50} values) to the most sensitive aquatic species [organisms]; and

(D) concentrations of toxic materials that bioaccumulate shall not exceed concentrations that are chronically toxic (as determined from appropriate chronic toxicity data or calculated as 0.01 of LC_{50} values) to the most sensitive aquatic species [organisms].

(8) For toxic substances where the relationship of toxicity is defined as a function of pH or hardness, numerical criteria are presented as an equation based on this relationship. Appropriate pH or hardness values for such criteria are listed for each basin in Table 2. Site-specific values for pH and hardness, are used where available. Site-specific values for each segment are given in the standards implementation procedures. [The indicated pH and hardness values (Table 2) for each basin will be assumed unless sufficient data are available to derive segment specific pH and hardness values.]

Figure: 30 TAC §307.6(c)(8)

(9) Criteria for most metals are multiplied by a water-effects ratio in order to incorporate the effects of local water chemistry on toxicity. The water-effects ratio is assumed to be equal to one except where sufficient site-specific data are available to determine the water-effects ratio for a particular water body or portion of a water body. A water-effects ratio is only applicable to those portions of a water body which are adequately addressed by site-specific data. Water-effects ratios and

resulting site-specific criteria which have been determined for particular water bodies are listed in Appendix E when standards are revised.

(10) [(9)] Additional site-specific factors may indicate that the numerical criteria listed in Table 1 are inappropriate for a particular water body [waterbody]. These factors are applied as a site-specific standards modification in accordance with §307.2(d) of this title (relating to Modification of Standards). The application of a site-specific standard must not impair an existing, attainable, or designated use. Factors which may justify a temporary variance or site-specific standards amendment include the following:

- (A) background concentrations of specific toxics of concern in receiving waters, sediment, and/or indigenous biota;
- (B) persistence and degradation rate of specific toxic materials;
- (C) synergistic, additive, or antagonistic interactions of toxic substances with other toxic or nontoxic materials;
- (D) measurements of total effluent toxicity;
- (E) indigenous aquatic organisms, which may have different responses to particular toxic materials;

(F) technological or economic limits of treatability for specific toxic materials;

(G) bioavailability of specific toxic substances of concern, as determined by water-effect ratio tests or other analyses approved by the commission; and

(H) new information concerning the toxicity of a particular substance.

(d) Specific numerical human health criteria.

(1) Numerical human health criteria are established in Table 3.

Figure: 30 TAC §307.6(d)(1)

(2) Categories of human health criteria:

(A) - (B) (No change.)

(C) concentration criteria in saltwaters [marine waters] to prevent contamination of fish and other aquatic life to ensure that they are safe for human [health] consumption. These criteria apply to saltwaters [marine waters] which have a sustainable fishery [fisheries] (Column C in Table 3).

(3) Specific assumptions and procedures (except where noted in Table 3).

(A) Sources for the toxicity factors to derive criteria [Criteria] were derived from [information on toxicity in] EPA's Integrated Risk Information System [Systems] (IRIS); EPA Health Effects Assessment Summary Tables (HEAST); Assessment Tools for the Evaluation of Risk (ASTER); and the computer program, CLOGP3. Bioconcentration factors were converted to an average lipid concentration in fish tissue of 3%, except where noted. [for both cancer potency slopes ($q1^*$) and reference doses for non-carcinogens (Rfd). The values in Table 3 reflect values found in IRIS as of January 1994.]

(B) - (D) (No change.)

(E) For carcinogens, a body-weight scaling factor of 3/4 power is [The ratio of average body weights] was used to convert data on laboratory test animals to human scale. Reported weights of laboratory test animals are used, and an average weight of 70 kg is assumed for humans. [When the weight of test animals was not specified, the average weights were considered to be 0.35 kilograms for rats, 0.03 kilograms for mice, and 70 kilograms for humans.]

[(F) Bioconcentration factors were obtained from the Quantitative Structure Activity Relationships Database (EPA) and corrected to an average lipid concentration in fish tissue of 3.0%.]

(F) [(G)] Numerical human health criteria were derived in accordance with the general procedures and calculations in the EPA guidance documents entitled *Technical Support*

Document for Water Quality-based Toxics Control (EPA/505/2-90-001); and *Guidance Manual for Assessing Human Health Risks from Chemically Contaminated Fish and Shellfish* (EPA/503/8-89-002).

(G) [(H)] If a calculated criterion to prevent contamination of drinking water and fish to ensure they are safe for human consumption (Column [column] A in Table 3) was greater than the applicable maximum contaminant level (MCL) in Chapter 290 of this title (relating to Water Hygiene), then the MCL [maximum contaminant level] was used as the criterion. [MCL's were updated February 1993.]

(H) [(I)] If the concentration of a substance in fish tissue used for these calculations was greater than the applicable United States Food and Drug Administration Action Level for edible fish and shellfish tissue, then the acceptable concentration in fish tissue was lowered to the Action Level for calculation of criteria.

(4) (No change.)

(5) Specific human health concentration criteria for water are applicable to water [waters] in the state which have sustainable fisheries, and/or designation or use as a public drinking water supply, except within mixing zones and below harmonic mean stream flows, in accordance with §307.8 of this title (relating to Application of Standards). The following waters are considered to have sustainable fisheries:

(A) - (E) (No change.)

(6) Waters which are not considered to have a sustainable fishery, but which have an aquatic life use, will be considered to have an incidental fishery. Consumption rates assumed for incidental fishery waters are 1.0 grams per person per day for inland waters, and 1.5 grams per person per day for saltwaters [marine waters]. Numerical criteria applicable to incidental fishery waters are therefore ten times the criteria listed in Columns B and C of Table 3.

(7) (No change.)

(8) For toxic materials of concern for which specific human health criteria are not listed in Table 3, the following provisions shall apply. [:]

(A) For [for] known or suspected carcinogens (Types A, B, B₂, or C in EPA databases [IRIS]), a cancer risk of 10⁻⁵ (1 in 100,000) shall be applied to the most recent numerical criteria adopted by EPA and published in the *Federal Register*. If an MCL is less than the resulting criterion, then the MCL shall apply to public drinking water supplies in accordance with paragraph (3)(G) of this subsection. [in 57 FR 60848 December 22, 1992;]

(B) For [for] toxic materials not defined as carcinogens, the most recent numerical criteria adopted by EPA and published in the *Federal Register* shall be applicable. If an

MCL is less than the resulting criterion, then the MCL shall apply to public drinking water supplies in accordance with paragraph (3)(G) of this subsection. [in 57 FR 60848 shall directly apply;]

(C) In [in] the absence of available criteria, numerical criteria may be derived [developed] from available information [available in IRIS and Quantitative Structure Activity Relationships Database (QSAR)] and calculated in accordance with the provisions of paragraph (3) of this subsection.

(9) (No change.)

(10) Numerical human health criteria are expressed as total recoverable concentrations for nonmetals, [and for] mercury, and selenium and as dissolved concentrations for other metals and metalloids.

(11) Additional site-specific factors may indicate that the numerical human health criteria listed in Table 3 are inappropriate for a particular water body [waterbody]. These factors are applied as a site-specific standards modification in accordance with §307.2(d) of this title (relating to Modification of Standards). The application of site-specific criteria shall not impair an existing, attainable, or designated use or affect human health. Factors which may justify a temporary variance or site-specific standards amendment include the following:

(A) - (I) (No change.)

(e) Total toxicity.

(1) Total (whole-effluent) toxicity of permitted discharges, as determined from biomonitoring of effluent samples at appropriate dilutions, will be sufficiently controlled to preclude acute total toxicity in all water in the state with the exception of small zones of initial dilution (ZIDs) at discharge points and at extremely low streamflow conditions (one-fourth of critical low-flow conditions) in accordance with §307.8 of this title (relating to Application of Standards) [(ZIDs)]. Acute total toxicity levels may be exceeded in a ZID, but there shall be no lethality to aquatic organisms which move through a ZID, and the sizes of ZIDs are limited in accordance with §307.8 of this title [(relating to Application of Standards)]. Chronic total toxicity, as determined from biomonitoring of effluent samples, will be precluded in all water in the state with existing or designated aquatic life uses except in mixing zones and at flows less than critical low-flows, in accordance with §307.8 of this title.

(2) General provisions for controlling total toxicity.

(A) (No change.)

(B) In addition to the other requirements of this section, the effluent of discharges to water [waters] in the state shall not be acutely toxic to sensitive species of aquatic life, as demonstrated by effluent toxicity tests. Toxicity testing for this purpose shall be conducted on samples of 100% effluent, and the criterion for acute toxicity shall be mortality of 50% or more of the test organisms after 24 hours of exposure. [These observations for acute toxicity may be conducted during

either acute or chronic toxicity tests, which are described in the standards implementation procedures.]

This provision does not apply to mortality that is a result of an excess, deficiency, or imbalance of dissolved inorganic salts (such as sodium, calcium, potassium, chloride, or carbonate) which are in the effluent and are not listed in Table 1 in subsection (c) of this section or which are in source waters.

(C) The latest revisions of the following EPA publications provide methods for appropriate biomonitoring procedures: *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*, and the *Technical Support Document for Water Quality-based Toxics Control*. The use of other procedures approved by the executive director and EPA [commission] is also acceptable. Toxicity tests must be conducted using representative, sensitive aquatic organisms as approved by the executive director [commission], and any such testing must adequately determine if toxicity standards are being attained.

(D) - (E) (No change.)

(F) Discharge permit limits based on total toxicity may be established in consideration of site-specific factors, but the application of such factors shall not result in impairment of an existing, attainable, or designated use. These factors are applied as a site-specific standards modification in accordance with §307.2(d) of this title (relating to Description of Standards). A demonstration that uses are protected may consist of additional effluent toxicity testing, instream

monitoring requirements, and/or other necessary information as determined by the executive director [commission]. Factors which may justify a temporary variance or site-specific standards amendment include the following:

(i) - (v) (No change.)

§307.7. Site-specific [Specific] Uses and Criteria.

(a) Uses and numerical criteria are established on a site-specific basis for classified segments in Appendix A of §307.10 of this title (relating to Appendices A - E). Site-specific uses and numerical criteria may also be applied to unclassified waters in accordance with §307.4(h) of this title (relating to General Criteria) and §307.5(c) of this title (relating to Antidegradation). Site-specific criteria apply specifically to substances attributed to waste discharges or the activities of man. Site-specific criteria do not apply to those instances in which surface waters exceed criteria [limits] due to natural phenomena. The application of site-specific uses and criteria is described in §307.8 of this title (relating to the Application of Standards) and §307.9 of this title (relating to the Determination of Standards Attainment).

(b) Appropriate uses and criteria for site-specific standards are defined as follows[:].

(1) Recreation. Recreational use consists of two categories - contact recreation waters and noncontact recreation waters. Classified segments are designated for contact recreation unless

elevated concentrations of indicator bacteria frequently occur due to sources of pollution which cannot be reasonably controlled by existing regulations or contact recreation is considered unsafe for other reasons such as ship or barge traffic. [Recreational use consists of two subcategories--contact recreation waters and noncontact recreation waters. Classified segments will be designated for contact recreation unless elevated fecal coliform bacteria concentrations frequently occur due to sources of pollution which cannot be reasonably controlled by the existing regulations or contact recreation is considered unsafe for other reasons such as ship or barge traffic.] In a classified segment where contact recreation is considered unsafe for reasons unrelated to water quality, a designated use of noncontact recreation may be assigned criteria normally associated with contact recreation. [a designated use of noncontact recreation may be assigned the fecal coliform criteria normally associated with contact recreation.] A designation of contact recreation is not a guarantee that the water so designated is completely free of disease-causing organisms. Indicator bacteria, [Fecal coliform bacteria,] although not generally pathogenic, are indicative of potential contamination by feces of warm blooded animals. The criteria for contact recreation are based on these indicator bacteria, rather than direct measurements of pathogens. Even where the concentration of indicator bacteria is less than the criteria for contact recreation, [pathogenic bacteria. Even where the concentration of fecal coliform is below the criteria for contact recreation,] there is still some risk of contracting waterborne diseases. Subcategories of contact recreation are general contact recreation and high-use contact recreation. Numerical criteria for both categories are the same, but procedures for assessing instream monitoring data are different for the two categories. Additional guidelines on monitoring frequency and data evaluation are specified in the latest version of the *TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data.*

(A) Freshwater [Contact recreation waters.]

(i) General contact recreation. The geometric mean of *E. coli* should not exceed 126 per 100 ml. Sampling data for *E. coli* apply when conditions are suitable for contact recreation. Procedures to determine when sampling data apply are specified in *TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data*. General contact recreation applies to all freshwater streams and rivers except where specifically designated otherwise in §307.10 of this title (relating to Appendices A - E). [Fecal coliform content shall not exceed 200 colonies per 100 ml as a geometric mean based on a representative sampling of not less than five samples collected over not more than 30 days.]

(ii) High-use contact recreation. The geometric mean of *E. coli* should not exceed 126 per 100 ml. Sampling data for *E. coli* apply for all flow and weather conditions. High-use contact recreation applies to all freshwater lakes and reservoirs, except where specifically designated otherwise in §307.10 of this title. Other kinds of water bodies may be individually designated for high-use contact recreation in Appendix A. [Fecal coliform content shall not equal or exceed 400 colonies per 100 ml in more than 10% of all samples, but based on at least five samples, taken during any 30-day period. If ten or fewer samples are analyzed, no more than one sample shall exceed 400 colonies per 100 ml.]

(iii) Noncontact recreation. The geometric mean of *E. coli* should not exceed 605 per 100 ml.

(B) Saltwater. [Noncontact recreation waters.]

(i) General contact recreation. The geometric mean of Enterococci should not exceed 35 per 100 ml. Sampling data for Enterococci apply when conditions are suitable for contact recreation. Procedures to determine when sampling data apply are specified in *TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data*. General contact recreation applies to all tidal streams and rivers, except where specifically designated otherwise in §307.10 of this title. [Fecal coliform content shall not exceed 2,000 colonies per 100 ml as a geometric mean based on a representative sampling of not less than five samples collected over not more than 30 days.]

(ii) High-use contact recreation. The geometric mean of Enterococci should not exceed 35 per 100 ml. Sampling data for Enterococci apply for all flow and weather conditions. High-use contact recreation applies to all bays and to the Gulf of Mexico to the extent of the state's jurisdiction, except where specifically designated otherwise in §307.10 of this title. Other kinds of water bodies may be individually designated for high-use contact recreation in Appendix A. [Fecal coliform content shall not equal or exceed 4,000 colonies per 100 ml in more than 10% of all samples, but based on at least five samples, taken during any 30-day period. If ten or fewer samples are analyzed, no more than one sample shall exceed 4,000 colonies per 100 ml.]

(iii) Noncontact recreation. The geometric mean of Enterococci should not exceed 168 per 100 ml.

(C) Fecal coliform bacteria. Fecal coliform bacteria can be used as an alternative instream indicator of recreational suitability until sufficient data are available for *E coli* or Enterococci. Minimum data requirements are specified in the latest version of the *TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data*. For segments designated as oyster waters in §307.10 of this title, fecal coliform can continue to be used as an indicator of recreational suitability because fecal coliform is used as the indicator for suitability of oyster water use as described in paragraph (3)(B) of this subsection. Fecal coliform can also continue to be used as a surrogate indicator in effluent limits for wastewater discharges. Fecal coliform criteria are the same for both freshwater and saltwater, as indicated below.

(i) General contact recreation. The geometric mean of fecal coliform should not exceed 200 per 100 ml. Designations for general contact recreation and the applicability of sampling data are as described in subparagraph (A) of this paragraph for freshwater and as described in subparagraph (B) of this paragraph for saltwater.

(ii) High-use contact recreation. The geometric mean of fecal coliform should not exceed 200 per 100 ml. Instream sampling data for fecal coliform apply for all flow and weather conditions. Designations for high-use contact recreation are as described in subparagraph (A) of this paragraph for freshwater and as described in subparagraph (B) of this paragraph for saltwater.

(iii) Noncontact recreation. Fecal coliform shall not exceed 2,000 colonies per 100 ml as a geometric mean.

(D) Single samples and short-term indicators. No criteria or requirements are established in this title for assessing recreational suitability based on single samples or other short-term indicators. For areas where local jurisdictions or private property owners voluntarily provide public notice or closure based on water quality, the use of any single-sample or short-term indicators of recreational suitability are selected at the discretion of the local managers of aquatic recreation. Guidance for single-sample bacterial indicators is available in the EPA document entitled *Ambient Water Quality Criteria for Bacteria - 1986*. Other short-term indicators to assess water quality suitability for recreation -- such as measures of streamflow, turbidity, or rainfall -- may also be appropriate.

(2) Domestic water supply.

(A) Use categories. Domestic water supply consists of two use subcategories-- public water supply and aquifer protection.

(i) Public water supply. Segments designated for public water supply are those known to be used or exhibit characteristics that would allow them to be used as the supply source for public water systems, as defined by Chapter 290 of this title (relating to Water Hygiene).

(ii) Aquifer protection. Segments designated for aquifer protection are capable of recharging the Edwards Aquifer. The principal purpose of this use designation is to protect the quality of water infiltrating into and recharging the aquifer. The designation for aquifer protection

applies only to those portions of the segments so designated that are on the recharge zone, transition zone, or contributing zone as defined in Chapter 213 of this title (relating to the Edwards Aquifer).
Chapter 213 of this title establishes provisions for activities in the watersheds of segments which are designated for aquifer protection.

(B) (No change.)

(3) Aquatic life. The establishment of numerical criteria for aquatic life is highly dependent on desired use, sensitivities of usual aquatic communities, and local physical and chemical characteristics. Five subcategories of aquatic life use are established. They include limited, intermediate, high, and exceptional aquatic life and oyster waters. Aquatic life use subcategories designated for segments listed in Appendix A of §307.10 of this title recognize the natural variability of aquatic community requirements and local environmental conditions.

(A) Dissolved oxygen.

(i) The characteristics [definitions] and associated dissolved oxygen criteria for limited, intermediate, high, and exceptional aquatic life use subcategories are indicated in Table 4.

Figure: 30 TAC §307.7(b)(3)(A)(i)

(ii) The dissolved oxygen criteria and associated critical low-flow values in Table 5 apply to [unclassified] streams which have significant aquatic life uses, and to streams which are specifically listed in Appendix A or D of §307.10 of this title. The criteria in Table 5 apply to streams in Texas [all parts of Texas] which are east of a line defined by Interstate Highway 35 and 35W from the Red River to the community of Moore in Frio County, and by U.S. Highway 57 from the community of Moore to the Rio Grande. The critical low-flow values in Table 5 (at the appropriate stream bedslope) will be utilized as headwater flows when the flows are larger than applicable 7Q2 flows, in order to determine discharge effluent limits necessary to achieve dissolved oxygen criteria. For streams which have bedslopes less than the minimum bedslopes in Table 5, the flows listed for the minimum bedslope of 0.1 m/km will be applicable. For streams which have bedslopes greater than the maximum bedslope in Table 5, the flows listed for the maximum bedslope of 2.4 m/km will be applicable. The required effluent limits will be those necessary to achieve each level of dissolved oxygen (as defined in clause (i) of this subparagraph, Table 4) at or below an assigned, designated, or presumed aquatic life use. Presumed aquatic life uses will be in accordance with those required by §307.4(h) of this title (relating to General Criteria). The dissolved oxygen criteria in Table 5 do not apply to tidal streams [or streams which are specifically listed in Appendix A of §307.10 of this title].
Figure: 30 TAC §307.7(b)(3)(A)(ii)

(iii) The dissolved oxygen criteria in Table 5 are based upon data from the commission's least impacted stream study (Texas Aquatic Ecoregion Project). Results of this study indicate a strong dependent relationship for average summertime background dissolved oxygen

concentrations and several hydrologic and physical stream characteristics--particularly bedslope (stream gradient) and stream flow. The dissolved oxygen criteria in Table 5 are derived from a multiple regression equation for the eastern portion of Texas as defined in clause (ii) of this subparagraph. Further explanation of the development of the regression equation and its application will be contained in the standards implementation procedures.

(iv) The critical low-flow values in Table 5 may be adjusted based on site-specific data relating dissolved oxygen concentrations to factors such as flow, temperature, or hydraulic conditions in accordance with the standards implementation procedures. Site-specific, critical low-flow values require approval by the commission. EPA will review any site-specific, critical low-flow values that could affect permits or other regulatory actions that are subject to approval by EPA. Critical low-flow values which have been determined for particular streams are listed in §307.10 of this title (relating to Appendices A - E) when standards are revised.

(B) Oyster waters.

(i) A 1,000 foot buffer zone, measured from the shoreline at ordinary high tide, is established for all bay and gulf waters, except those contained in river or coastal basins as defined in §307.2 of this title (relating to Description of Standards). Fecal coliform content in buffer zones shall not exceed 200 colonies per 100 ml as a geometric mean, [of not less than five samples collected over not more than 30 days or equal or exceed 400 colonies per 100 ml in more than 10% of all samples taken during a 30-day period.]

(ii)-(iii) (No change.)

(4) Additional criteria.

(A) - (B) (No change.)

(C) Temperature. Site-specific temperature criteria are established as absolute maxima.

(D) (No change.)

(5) Additional uses. Other basic uses, such as navigation, agricultural water supply, [and] industrial water supply, seagrass propagation, and wetland water quality functions will be maintained and protected for all water in the state in which these uses can be achieved.

§307.8. Application of Standards.

(a) Low-flow conditions.

(1) The following standards do not apply below seven-day, two-year low-flows:

(A) - (B) (No change.)

(C) total chronic toxicity restrictions as established in §307.6 of this title
[(relating to Toxic Materials)];

(D) maximum temperature differentials as established in §307.4(f) of this title
(relating to General Criteria);

(E) dissolved oxygen criteria for unclassified waters, as established in
§307.4(h)(1) of this title [(relating to General Criteria)]; and

[(F) dissolved oxygen criteria for intermittent streams, as established in
§307.4(h)(2) of this title (relating to General Criteria); and]

~~(F)~~[(G)] aquatic recreation [fecal coliform] criteria for unclassified waters, as
established in §307.4(j)(i) of this title [(relating to General Criteria)] and in §307.7 (b)(1) of this title.

(2) Numerical acute criteria for toxic materials and preclusion of total acute toxicity as
established in §307.6 of this title [(relating to Toxic Materials)] are applicable at stream flows which are
equal to or greater than one-fourth of seven-day, two-year low-flows (7Q2). [all flow conditions.]

(3) - (6) (No change.)

(7) The general criteria are applicable at all flow conditions except as specified in this section or in §307.4 of this title [(relating to General Criteria)].

(8) Specific human health criteria for concentrations in water to prevent contamination of fish and shellfish so as to ensure safety for human consumption, as established in §307.6 of this title [(relating to Toxic Materials)] do not apply at stream flows below the harmonic mean flow.

(b) Mixing zones. A reasonable mixing zone will be allowed at the discharge point of permitted discharges into surface water in the state, in accordance with the following provisions.

(1) The following portions of the standards do not apply within mixing zones:

(A) (No change.)

(B) numerical chronic aquatic life criteria for toxic materials as established in §307.6 of this title [(relating to Toxic Materials)];

(C) total chronic toxicity restrictions as established in §307.6 of this title [(relating to Toxic Materials)];

(D) maximum temperature differentials as established in §307.4(f) of this title [(relating to General Criteria)];

(E) dissolved oxygen criteria for unclassified waters, as established in §307.4(h)(1) of this title [(relating to General Criteria)];

(F) dissolved oxygen criteria for intermittent streams, as established in §307.4(h)(2) of this title [(relating to General Criteria)];

(G) aquatic recreation [fecal coliform] criteria for unclassified waters, as established in §307.4(j) [(i)] of this title and in §307.7 (b)(1) of this title [(relating to General Criteria)];

(H) specific human health criteria for concentrations in water to prevent contamination of drinking water, fish and shellfish so as to ensure safety for human consumption, as established in §307.6 of this title [(relating to Toxic Materials)].

(2) Numerical acute aquatic life criteria for toxic materials and preclusion of total acute toxicity as established in §307.6 of this title [(relating to Toxic Materials)] are applicable in mixing zones. Acute criteria and acute total toxicity levels may be exceeded in small zones of initial dilution (ZIDs) at discharge points, but there shall be no lethality to aquatic organisms which move through a ZID. ZIDs shall not exceed the following sizes:

(A) - (C) (No change.)

(3) Provisions of the general criteria in §307.4 of this title [(relating to General Criteria)] remain in effect in mixing zones unless specifically exempted in this section.

(4) (No change.)

(5) Where a mixing zone is defined in a valid permit issued by the commission, Railroad Commission of Texas, National Pollutant Discharge Elimination System (NPDES) and/or TPDES, [commission and/or national pollutant discharge elimination system (NPDES) permit] the mixing zone defined in the permit will apply.

(6) - (8) (No change.)

(9) Mixing zones will be individually specified for all permitted domestic discharges with a permitted monthly average flow equal to or exceeding one million gallons per day and for all permitted industrial discharges to water in the state (excepting discharges which consist entirely of storm water [stormwater] runoff). For domestic discharges with permitted monthly average flows less than one million gallons per day, a small mixing zone will be assumed in accordance with guidelines for mixing zone sizes specified in the standards implementation procedures [document]; and the commission may require specified mixing zones as appropriate.

(10) (No change.)

(c) Minimum analytical levels. The specified definition of permit compliance for a specific toxic material will not be lower than established minimum analytical levels, unless that toxic material is of particular concern in the receiving waters, or unless an effluent specific method detection limit has been developed in accordance with 40 CFR [Code of Federal Regulations Part] 136. Minimum analytical levels are listed in the standards implementation procedures.

(d) (No change.)

(e) Wet-weather conditions and storm water discharges. Pollutants in storm water will not impair existing or designated uses. Specific numerical criteria are frequently not applicable to the short-term effects of storm water. Such short-term effects on water quality are transitory, dynamic, and often of shorter duration than applicable averaging periods for numerical criteria. Should a numerical criteria be exceeded during wet weather, the commission may not consider it a violation of water quality standards unless the exceedence is due to human activity and would not occur without that activity. Therefore, controls on the quality of storm water discharges are largely based on the implementation of best management practices and/or technology-based limits, in combination with instream monitoring to assess standards attainment and to determine if additional controls on storm water quality are needed. The standards implementation procedures describe how TPDES permits for storm water discharges are evaluated and developed to protect water quality standards. The evaluation of instream monitoring data for standards attainment should include the effects of storm water, and this approach is utilized in §307.9 of this title (relating to the Determination of Standards Attainment) and in

the TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data.

§307.9. Determination of Standards Attainment.

(a) General standards attainment sampling procedures [Sampling locations]. Unless otherwise stated in this chapter, additional details concerning sampling procedures for the measurement, collection, preservation and laboratory analysis of water quality samples are provided in the latest adopted version of the TNRCC Surface Water Quality Monitoring Procedures Manual, the most recently published edition of the book entitled Standard Methods for the Examination of Water and Wastewater, 40 CFR 136, or other reliable procedures acceptable to the executive director. Unless otherwise stated in this chapter, additional details concerning how sampling data are evaluated to assess standards compliance is provided in the latest adopted version of the TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data.

[(1) Representative samples to determine standards attainment will be collected at locations approved by the commission. To ensure comparability with past sampling data, samples will be collected at established monitoring stations. Monitoring stations may be established or discontinued by the commission.]

[(2) Field investigation samples may be collected at points not established or approved as standards attainment sampling locations at the discretion of the commission.]

(b) Sampling locations. Representative samples to determine standards attainment will be collected at locations approved by the commission. Samples collected at non-approved locations may be accepted at the discretion of the executive director.

(c)[(b)] Collection and preservation of water samples.

(1) To ensure that representative samples are collected and to minimize alterations prior to analysis, collection and preservation of attainment determination samples will be in accordance with procedures set forth in the most recently published edition of the book entitled *Standard Methods for the Examination of Water and Wastewater*, the latest [most recent] version of the TNRCC Surface Water Quality Monitoring Procedures Manual, 40 CFR 136, [quality assurance program plan for the commission] or other reliable procedures acceptable to the executive director [commission].

(2) Bacterial and temperature determinations will be conducted on samples or measurements taken approximately one foot below [within one foot of] the surface. Depth collection procedures for chloride, sulfate, total dissolved solids, dissolved oxygen, and pH to determine standards attainment may vary depending on the water body being sampled. Where standards apply to the mixed surface layer, the depth of this layer is determined in accordance with procedures in the latest version of the TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data [published edition of the *Texas Surface Water Quality Inventory*]. Standards for chloride, sulfate, total dissolved solids, and pH are applicable to the mixed surface layer, but a single sample taken near

the surface [(at a depth of approximately one foot)] normally provides an adequate representation of these parameters.

(3) For dissolved oxygen, the following procedures are generally applicable:

(A) Non-tidal flowing streams. The dissolved oxygen criteria is applicable to the mixed surface layer, but a single sample taken near the surface normally provides an adequate representation of this parameter. [In flowing streams, a profile should be obtained to determine if the water column is uniformly mixed. Samples shall be collected one foot below the water surface in streams exhibiting a vertically mixed water column. A depth-integrated sample shall be used to determine attainment in unmixed streams. Where depth is less than 1.5 feet, the collection depth shall be one-third of the water depth measured from the water surface.]

(B) Impoundments. Representative samples shall be collected from the entire water column in the absence of thermal stratification. Collection of representative samples shall be confined to the epilimnion when an impoundment is thermally stratified.

(C) Tidal waters [Bays]. Representative samples shall be collected from the entire water column in the absence of density stratification. Under conditions of density stratification, a composite sample collected from the mixed surface layer shall be used to determine standards attainment. [A depth-integrated (vertical composite) sample shall be collected from the surface to the natural bottom. Dredged areas shall not be considered part of the natural bottom.]

[(D) Tidal streams. A surface to bottom profile of dissolved oxygen, pH, conductivity, and temperature shall be obtained in all cases. Under conditions of density stratification, a composite sample collected from the mixed surface layer shall be used to determine standards attainment.]

(4)[(3)] For [Numerical aquatic life criteria for] toxic materials, numerical aquatic life criteria are applicable to water samples collected at any depth. Numerical human health criteria are applicable to the average concentration from the surface to the bottom. For the purposes of standards attainment for aquatic life protection and human health protection, samples which are collected at approximately one foot below the water surface will also be acceptable for comparison to numerical criteria.

(d)[(c)] Sample analysis.

(1) Numerical criteria. [values] Procedures for laboratory analysis will be in accordance with the most recently published edition of the book entitled *Standard Methods for the Examination of Water and Wastewater*, the latest version of the *Texas Surface Water Quality Monitoring Procedures Manual*, 40 CFR 136, or other reliable procedures acceptable to the executive director. [Numerical values in the water quality standards shall be determined by analytical procedures recommended in the most recently published edition of the book entitled *Standard Methods for the Examination of Water and Wastewater*, the quality assurance program plan for the commission, Title 40

Chapter 136 of the Code of Federal Regulations, or other reliable methods acceptable to the commission.]

(2) Radioactivity. Measurements will be made on filtered samples to determine radioactivity associated with dissolved minerals in accordance with current analytical methodology approved by the EPA.

(3) Toxicity. Bioassay techniques will be selected as testing situations dictate but will generally be conducted using representative sensitive organisms in accordance with §307.6 of this title (relating to Toxic Materials).

[(4) Bacteria. Bacteriological levels shall be determined by either multiple-tube fermentation or membrane filter techniques.]

(e)[(d)] Sampling periodicity and evaluation.

(1) Chloride, sulfate, total dissolved solids (TDS). Standards attainment determinations shall be based on the annual average of measurements [taken on at least four different dates within one year]. Results from all monitoring stations within the segment will be averaged to allow for reasonable parametric gradients. TDS determinations may be based on measurements of specific conductance. [Conversion factors are presented in the latest publication of the *Texas Surface Water Quality Inventory* or may be based on additional site-specific data.]

(2) Radioactivity. The impact of radioactive discharges on the surface waters in Texas will be evaluated utilizing information developed by the Sanitary Engineering Research Laboratory at the University of Texas and presented in the June 30, 1960, report entitled, *Report on Radioactivity - Levels in Surface Waters - 1958-1960*.

(3) Bacteria. Standards attainment will be based on an annual geometric mean of applicable samples, and data will be evaluated in accordance with the provisions of [Standards attainment for fecal coliform bacteria will be determined as described in] §307.7(b)(1) of this title (relating to Site-specific Uses and Criteria).

(4) Toxic materials. Specific numerical acute toxic criteria are applied as 24-hour averages, and specific numerical chronic toxic criteria are applied as seven-day averages. Human health criteria are applied as long-term average exposure criteria designed to protect populations over a life time of 70 years. Refer to the latest version of the TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data for sampling periodicity and evaluation applicable to standards [Standards] attainment for human health criteria [will be based on the average of a minimum of four samples collected over at least a one year period].

(5) Temperature and pH. Standards attainment based on single measurements will be evaluated according to the latest version of the TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data [will be evaluated for measurements or samples taken at a single point in time].

(6) Dissolved oxygen.

(A) (No change.)

(B) Criteria for minimum concentrations will be compared to individual measurements. [taken at night (from sunset until two hours after sunrise).]

(f) Biological integrity. Biological integrity, which is an essential component of the aquatic life categories defined in §307.7(b)(3) of this title (relating to Site-specific Uses and Criteria), is assessed by sampling the presence and abundance of aquatic organisms. Attainment of aquatic life use may be assessed by indices of biotic integrity which are described in publicly available documents such as in the latest version of the *TNRCC Receiving Water Assessment Procedures Manual*.

(g) Additional parameters. Assessment of narrative criteria parameters shall be performed in accordance with the latest version of the *TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data*.

§307.10. Appendices A - E. The following appendices are integral components of this chapter of the Texas Surface Water Quality Standards.

(1) Appendix A - Site-specific Uses and Criteria for Classified Segments:

Figure: 30 TAC §307.10(1)

(2) Appendix B - Low Flow Criteria:

Figure 30 TAC §307.10(2)

(3) Appendix C - Segment Descriptions:

Figure 30 TAC §307.10(3)

(4) Appendix D - Site-specific Receiving Water Assessments:

Figure 30 TAC §307.10(4)

(5) Appendix E - Site-specific Criteria:

Figure 30 TAC §307.10(5)