

The Texas Natural Resource Conservation Commission (TNRCC or commission) adopts amendments to §§307.2 - 307.10, concerning the Texas Surface Water Quality Standards. These sections are adopted with changes to the proposed text as published in the February 4, 2000 issue of the *Texas Register* (25 TexReg 677).

As published in the Rules Review section in this issue of the *Texas Register*, the commission also adopts the review of Chapter 307 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 determined that the reasons for the rules continue to exist. The rules are readopted and amended to satisfy Texas Water Code (TWC), §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 are also readopted and amended to satisfy the federal Clean Water Act (CWA), §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 ADOPTED RULES

Section 303 of the Federal Water Pollution Control Act (commonly referred to as the federal CWA, 1972, 33 United States Code (USC), §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 water body and the water quality criteria that are necessary to protect the use or uses of that particular water body. Water quality standards must also contain an antidegradation policy. Water quality standards are the basis for establishing discharge limits in waste discharge permits and

other regulatory actions. The standards are used to assess whether water bodies are attaining appropriate water-quality related goals.

The states are required under the CWA 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 CWA 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: CWA, §304(l), lists of waters; CWA, §305(b), state reports (these reports provide an assessment of the condition of waters within the boundaries of each state); the waters identified under CWA, §303(d); 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 water body 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 CWA and implementing regulations. Standards are effective based upon state adoption, except as provided in 40 Code of Federal Regulations (CFR) §131.21 where approval by EPA is first needed.

The Texas statewide surface water quality standards were last amended on July 13, 1995. Amendments to §307.4, General Criteria, and §307.10, 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. The 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 TWC, §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 when: (1) a new discharge is proposed to enter

a stream believed to be perennial or intermittent with perennial pools; (2) there is a change proposed for an existing discharge, such as an increase in flow or loading; or (3) 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, is 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 the 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 CWA, which are to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The commission uses intensive survey data; the CWA

§304(l), list of waters; monitoring data; CWA, §305(b), data; and other available data for a water body 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 adopts 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 also adopts changes that are needed to incorporate additional information on toxic pollutants and new data on waters in the state. The adopted changes 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 adopted changes also provide clarity on how the standards apply in certain permitting situations.

In connection with the adoption of these rules, the commission is completing revisions to its implementation procedures for applying the adopted standards in wastewater discharge permits. Changes to the implementation procedures incorporate the adopted changes to the water quality standards contained in these rules. Changes are also being completed to implement the antidegradation policy. The implementation procedures are contained in a guidance document entitled, *Procedures to Implement the Texas Surface Water Quality Standards*. This document provides guidance and explanation of the general and technical procedures used in implementing the standards in wastewater discharge permits. The document is being revised at this time, both to be consistent with the amendments adopted in this chapter and in consideration of public comment on the proposed revisions to the implementation procedures. Revisions to the implementation procedures include information 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. Although not part of the regulatory action covered by the adoption of amendments to this chapter, the revisions to the implementation procedures were proposed at the same time as the proposed amendments to this chapter. This allowed for a more coordinated and consistent review by the commission and the public. 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 implementation procedures must be approved by the commission and submitted to the EPA for approval. The commission is expected to consider adoption of the revisions to the implementation procedures in the upcoming months of 2000.

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.

SECTION BY SECTION DISCUSSION

The commission adopts amendments to §307.2, Description of Standards, to 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). The adopted amendments 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 adopted amendments also clarify the effective date of the standards in order to reflect the current state administrative practices and a recent court ruling related to EPA approval and the effective date of standards.

In response to comments, amended §307.2(d)(5) now better describes that scientific information justifying the site-specific amendment of the standard is necessary. In response to comments, amended §307.2(d)(5)(E) now clarifies that the commission approves a variance extension based upon a study which supports the change in standards. In response to comments, §307.2(e) has been amended to refer to the correct title of a guidance document which recently underwent revision.

Provisions for the approval of temporary standards have also been adopted as §307.2(g). These temporary standards may be approved as an alternative to revising a use where a criterion is not attained or cannot be reasonably attained. In response to comments, §307.2(g) has been changed to delete the word “reasonably” when referring to attainment of a standard and the subsection now includes a reference to the standards implementation procedures, which includes greater detail on how the commission will use and implement temporary standards.

The commission adopts §307.2(h), which specifies the effective date of these amendments and manner in which the effective date is affected by EPA review and approval. The commission adopts §307.2(i), which includes a severability clause.

The commission adopts amendments to §307.3, Definitions and Abbreviations, to include amendments to the definitions for “ambient,” “background,” “best management practices,” “discharge permit,” “fecal coliform,” “method detection limit,” “minimum analytical level,” “noncontact recreation,” “seven-day two-year low-flow,” “standards,” “standards implementation procedures,” “sustainable fisheries,” and “water-effects ratio.” New definitions have been adopted for “attainable use;” “bioconcentration factor;” “biological integrity;” “classified;” “designated use;” “*E. coli*” and “enterococci bacteria;” “existing use;” “incidental fishery;” “intermittent stream with perennial pools;” “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.” In response to comments, the commission has changed the definition of several terms in the adoption of the amendments to this section. The revised definitions are for the terms “bioconcentration factor,” biological integrity,” “chronic toxicity,” “mixing zone,” “public drinking water supply,” “seagrass propagation,” “standards implementation procedures,” “storm water discharge,” “surface water in the state,” “toxicity biomonitoring,” “water effects ratio,” and “water quality management program.”

In response to comments, the commission also has deleted its proposal to include a definition of “pollutant” and instead adopts a definition of “pollution,” as that term is used in this chapter.

Attainable, designated, existing, and presumed uses have all been individually defined to provide for a more accurate description of each use. In response to comments, the proposed definitions of “attainable use” and “existing use” have been revised in the adoption of amendments to this section. In response to comments, the commission has deleted the terms “commission,” “general contact recreation,” and “high use contact recreation.”

The adopted changes add new abbreviations in §307.3(b) for Chemical Abstracts Service Registry number (CASRN), maximum contaminant level (for public drinking water) (MCL), municipal separate storm sewer system (MS4), total maximum daily load (TMDL), Texas Pollutant Discharge Elimination System (TPDES), and total suspended solids (TSS).

The commission adopts amendments to §307.4, General Criteria, to clarify in §307.4(b)(3) that the provision for settleable solids does not prohibit dredge and fill activities under the federal CWA, §404. The adoption includes changes which were incorporated in response to comments.

The revisions also clarify in adopted amendments to §307.4(d) 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. In response to comments, the adoption of this subsection includes changes to cross-reference §307.8(a)(2) and includes correction of a typographical error.

Amendments to the salinity provisions in §307.4(g) have been adopted to indicate that concentrations of dissolved minerals such as chlorides, sulfates, and TDS 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. In response to comments, the amendments to §307.4(g)(3) have been changed to more clearly reflect that attainable uses will be protected.

The commission adopts amendments to §307.4(h) to clarify the general provision that dissolved oxygen concentrations shall be sufficient to support existing, designated, and attainable aquatic life uses. The adopted amendments more clearly address the general criteria for dissolved oxygen for all waters in the state regardless of whether the water is classified or unclassified. The amendments 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 milligrams per liter (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. In response to comments, the adoption of amended §307.4(h)(4) includes changes to reflect that higher uses will be protected where they are attainable. The commission determined it was unnecessary to reference the standards implementation procedures and has deleted the reference in §307.4(h)(4).

The commission adopts §307.4(i), relating to aquatic life uses and habitat. In response to comments, the adoption of this subsection includes a change that deletes reference to protection of “existing” uses.

The commission adopts §307.4(j), relating to aquatic recreation. In response to comments, the adoption of this subsection includes changes which delete the proposed criteria of “general” and “high use” as contact recreation subcategories. Also, the adopted language includes changes to note that contact recreation is a presumed use, except where otherwise specified for specific water bodies.

The commission adopts amendments to §307.5, Antidegradation, to clarify that the development and implementation of TMDLs are actions subject to the antidegradation policy. The amendments also

more closely follow the federal regulations, reflecting the “tier” approach to describing the antidegradation policy. The antidegradation policy affords three tiers or levels of protection to the waters in the state.

In response to comments, adopted amendments to §307.5(a), (b)(4), and (c) include references to pollution and loadings, rather than pollutants or pollutant loadings. Changes also include corrected references to “agency” and “commission,” as appropriate. Also in response to comments, adopted amendments to §307.5(b)(1) reflect that Tier 1 antidegradation reviews consider existing uses.

The commission adopts amendments to §307.5(b)(4) to 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 pollution. In response to comments, the adopted amendments to paragraph (4) include changes to better describe the scope of the commission’s antidegradation policy.

The commission adopts amendments to §307.5(c) to also specify the manner in which the agency will implement its antidegradation policy, including the consideration of public input. In response to comments, the adopted amendments to §307.5(c)(2)(E) include a change which makes it clear that public comment will be considered on decisions concerning antidegradation for specific regulatory actions.

The commission adopts amendments to §307.6, Toxic Materials, to clarify that acute numerical aquatic-life criteria for toxic substances apply above low-flow conditions (1/4 of 7Q2). The adopted

amendments also include the addition of human health criteria for acrylonitrile and 1,3-Dichloropropene to Table 3, relating to Human Health Protection. The commission adopts amendments to the numerical criteria for human health protection in Table 3. The amendments remove Mirex 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. Amendments to Polychlorinated Biphenyls (PCBs) numerical criteria have been adopted. Amendments have been adopted to Table 1, concerning Toxic Criteria to Protect Aquatic Life, and Table 2, concerning Total Hardness and pH Values. The amendments to Table 1 include: (1) adjusting criteria for dissolved metals in accordance with new EPA data; and (2) adding water-effects ratios to metals criteria to address site-specific differences in toxicity due to water chemistry. Adopted amendments to Table 2 include updating basin pH and hardness values in response to new data received. Chemical Abstracts Service Registry Numbers (CASRN) have also been added for each substance in Tables 1 and 3.

In response to comments on §307.6(b)(4), the commission adopts amendments that include changes to clarify the scope of the protection of terrestrial wildlife. In response to comments on §307.6(c)(9), the commission adopts amendments that include changes to specify that a wastewater discharge permit application will include public notice of a proposed water-effects ratio which affects an effluent limitation in a permit. In response to comments on §307.6(d)(8)(C), the commission adopts amendments that include changes which clarify that technically valid information is used by the agency in deriving numerical criteria when toxic criteria are not listed in Table 3. Also, throughout this section, the amendments include appropriate revisions to cite actions by the “agency,” rather than by the executive director or commission.

In response to comments on §307.6 (Table 3), the commission adopts amendments that include changes to delete its proposed numerical criteria for perchlorate and for atrazine. Additionally, the commission adopts several amendments to Table 3 which were not specifically proposed, but which are necessary changes for editorial clarity or to resolve contradictions within the existing rule.

The commission adopts amendments to §307.7, relating to Site-Specific Uses and Criteria. The adopted amendments to this section include a change in the recreational indicators 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 commission adopts amendments which retains fecal coliform as an indicator for noncontact recreational waters. Additionally, the commission adopts amendments which include changes to clarify the units of measurement in indicator bacteria tests. In response to comments on §307.7(b)(1), the commission has deleted the proposal to subcategorize contact recreation into general and high uses. Additionally, paragraph (1) has been changed to adopt single sample maximums for all three indicator bacteria and to clarify the manner in which compliance with these standards will be evaluated.

In response to comments, the commission adopts amendments to §307.7(b)(1)(B)(i) with changes from the proposal to refer to all bodies of saltwater rather than to tidal streams and rivers. Also in response to comments, the commission adopts amendments to §307.7(b)(1)(D) with changes from the proposed language referring to local swimming advisory programs.

The commission adopts amendments to Table 5, concerning critical low-flow values for dissolved oxygen for the eastern and southern Texas ecoregions. These amendments 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. Throughout §307.7(b)(3)(A), the amendments include appropriate revisions to cite actions by the “agency,” rather than by the commission.

The commission adopts amendments to §307.7(b)(5) which specify wetland water quality functions and seagrass propagation as uses to be maintained and protected.

The commission adopts amendments to §307.8, Application of Standards, to clarify the stream flow conditions where acute toxic criteria apply. The adopted rule specifies that acute toxic criteria apply at stream flows above 1/4 of 7Q2. The adopted amendments to §307.8(b)(5) describe the context of mixing zones specified in permits issued by state and federal agencies. In response to comments, the adopted amendments to paragraph (5) include changes to better reference the agencies which issue the permits.

The commission adopts §307.8(e), relating to storm water discharges, to specify that pollutants in storm water shall not impair existing or designated uses. This subsection includes new provisions to describe how the quality of storm water discharges are controlled and how the evaluation of instream monitoring data occurs. In response to comments, the adopted amendments to this subsection include changes to the title of the subsection and references to “pollution” rather than to “pollutants.” The commission has deleted its proposal to describe when specific numerical criteria are not applicable due to short-term effects of storm water.

The commission adopts amendments to §307.9, Determination of Standards Attainment. The amendments to §307.9(a) include updating references to guidance documents which the agency considers when assessing standards attainment. In response to comments, the adopted amendments to §307.9(a) include changes to the title of the subsection. Also, in this subsection and in the other subsections of §307.9, references to particular guidance documents have been changed to either the “latest version” or the “latest approved version,” as appropriate. The remarks in §307.9 alluding to various guidance documents and other reference materials are included to inform those using these rules of some of the resources that may be consulted in designing or reviewing studies and of data to assess standards attainment. They are advisory and not exclusive. Standards attainment is determined by the executive director’s staff and by the commission on a case-by-case basis.

The commission adopts amendments to §307.9(b) to update procedures for approval by the agency of sampling locations and for consideration of representativeness of samples. Adopted amendments to §307.9(b) include changes to delete the proposed title of “Sampling locations.”

The commission adopts amendments to §307.9(c) and (d) to update the procedures for the collection, preservation, and analysis of water samples--for assessing instream standards compliance. These amendments provide for enhanced consistency and quality assurance in reporting.

The commission adopts amendments to §307.9(e) to update the manner in which the number and periodicity of water samples is evaluated. In response to comments, the commission adopts amendments that include changes from the proposal. These adopted changes from the proposal include correction of the standards attainment method for chloride, sulfate, and TDS. Also, as an addition to

the proposal, the adopted amendments address how single sample maximums are assessed for the attainment of bacteria criteria. Finally, the commission adopts changes to the proposal in §307.9(e)(6)(B) to clarify how minimum dissolved oxygen values are assessed from single sample measurements.

The commission adopts new provisions in §307.9(f) for measuring biological integrity which is assessed by sampling of aquatic organisms. In response to comments, the adopted provision includes changes to refer to sampling of the aquatic community, rather than sampling of the presence and abundance of aquatic organisms.

The commission adopts new provisions in §307.9(g) which address how attainment of narrative criteria in the water quality standards will be assessed.

Throughout §307.9, the adoption of the amendments include appropriate revisions to cite actions by the “agency,” rather than by the commission or executive director.

Adopted changes to §307.10, Appendices A-E, include changes in Appendix A 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 adopted changes are based on the results of use attainability analyses that have been performed. Adopted 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 (TDS, 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 Cagey Creek, to account for different hydrological conditions.

Dissolved minerals criteria revisions are adopted for 108 segments in Appendix A based on new calculations using updated information. The following segments have had one or more of the dissolved minerals (chloride, sulfate and TDS) revised: 0105, 0228, 0229, 0401, 0408, 0409, 0503, 0504, 0505, 0507, 0512, 0602, 0603, 0604, 0605, 0606, 0609, 0610, 0611, 0612, 0613, 0818, 0819, 0820, 0838, 0902, 1002, 1003, 1004, 1008, 1009, 1010, 1011, 1012, 1015, 1016, 1108, 1212, 1217, 1221, 1226, 1229, 1233, 1240, 1242, 1243, 1244, 1246, 1247, 1248, 1249, 1250, 1251, 1252, 1255, 1302, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1414, 1415, 1416, 1427, 1428, 1429, 1430, 1432, 1434, 1502, 1602, 1604, 1605, 1803, 1804, 1805, 1806, 1809, 1811, 1812, 1813, 1814, 1815, 1816, 1817, 1818, 1905, 1908, 1911, 1912, 1913, 2004, 2110, 2111, 2112, 2113, 2114, 2115, 2303, 2309, 2310, 2312, and 2313. Other adopted changes to Appendix A 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). 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 Tawankoni has been revised as a result of additional data. Adopted new indicator bacteria and criteria for recreational uses are also included in Appendix A.

Adopted changes to Appendix B include a recalculation of critical-condition flows to incorporate more recent instream flow data.

Appendix C adopted 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 adopted 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 adopted to clarify or to correct clerical errors in existing descriptions of segments found in Appendix A.

Adopted changes to Appendix D include the addition of 100 sites with designated aquatic life uses and dissolved oxygen criteria. The water bodies are tributaries within the listed segment numbers as follows: 0202, Bois d'Arc Creek; 0202, Pine Creek, 0203, Big Mineral Creek; 0203, Little Mineral Creek; 0303, Morrison Branch; 0402, Hughes Creek; 0404, Dry Creek; 0404, Sparks Branch; 0404, Tankersley Creek; 0404, Unnamed tributary of Okry Creek; 0407, Beach Creek; 0503, Caney Creek; 0505, Little Rabbit Creek; 0505, Rocky Creek; 0505, Wall Branch; 0506, Giladon Creek; 0506, Unnamed tributary of Grand Saline Creek; 0506, Unnamed tributary of Sabine River (Ninemile Creek);

0506, Wiggins Creek; 0510, Adaway Creek; 0510, Mill Creek; 0513, Trout Creek; 0604, Caddo Creek; 0604, Cedar Creek; 0604, Graham Creek; 0604, Unnamed tributary of Caddo Creek; 0605, Little Duncan Branch; 0606, Prairie Creek; 0607, Boggy Creek; 0607, Cotton Creek; 0610, Ayish Bayou; 0611, Henshaw Creek; 0701, Green Pond Gully; 0701, Mayhan Gully; 0704, Willow Marsh Bayou; 0802, Choates Creek; 0802, Long King Creek; 0803, Harmon Creek; 0803, Parker Creek; 0803, Turkey Creek; 0804, Box Creek; 0804, Mims Creek; 0815, Waxahachie Creek; 0818, One Mile Creek; 0827, Cottonwood Creek; 0827, White Rock Creek; 0836, Pin Oak Creek; 1001, Gum Gully; 1001, Jackson Bayou; 1001, Rickett Creek; 1002, Tarkington Bayou; 1004, East Fork White Oak Creek; 1004, Unnamed tributary; 1004, West Fork White Oak Creek; 1008, Mill Creek; 1008, Panther Branch (two reaches); 1009, Dry Creek (two reaches); 1009, Dry Gully (two reaches); 1012, Robinson Creek; 1012, Town Creek; 1014, Buffalo Bayou; 1014, Horsepen Creek; 1014, Langham Creek, 1014, South Mayde Creek; 1014, Turkey Creek; 1101, Magnolia Creek; 1102, Marys Creek/North Fork Marys Creek; 1105, Flores Bayou; 1202, Beason Creek; 1202, Unnamed oxbow slough; 1206, Kickapoo Creek; 1206, Rock Creek; 1206, Unnamed Tributary of Rock Creek; 1209, Wickson Creek; 1221, Indian Creek; 1221, Pecan Creek; 1230, Palo Pinto Creek; 1242, Thompson Creek; 1246, Comanche Springs Spring Brook; 1246, Harris Creek; 1305, Hardeman Slough; 1402, Allen Creek; 1402, Buckners Creek; 1402, Cummins Creek; 1404, Hamilton Creek; 1412, Deep Creek; 1412, North Fork Champion Creek; 1418, Hord Creek; 1434, Cedar Creek; 1434, Gazley Creek; 1602, Big Brushy Creek; 1604, East Mustang Creek; 1605, West Navidad River; 1810, Town Branch; 2201, Perennial drainage ditches; 2202, Perennial drainage ditches; 2422, Anahuac Ditch; 2432, Mustang Bayou; 2491, Perennial drainage ditches; and 2494, Perennial drainage ditches. Other adopted changes in Appendix D include a revision of the site description for Wards Creek (tributary to segment 0505), an addition of a seasonal dissolved oxygen criterion and site-specific flow for Rabbit Creek (tributary to segment

0505), a revision of dissolved oxygen criteria from 3.0 mg/L to 5.0 mg/L for Alto Branch and Larisson Creek in segment 0604, a revision of the site description for Mud Creek in segment 0611 which extends the high aquatic life use designation upstream to the confluence of Prairie Creek, a revision from 4.0 mg/L to 3.0 mg/L of the dissolved oxygen criterion for Jefferson County canals in segment 0702, and clarification of the site descriptions for Bear Creek, South Mayde Creek, Horsepen Creek, and Mason Creek in segment 1014. Aquatic life use for the portion of Brushy Creek upstream of the segment 1244 - Brushy Creek boundary has been revised from intermediate to high based on a recent receiving water assessment using current commission protocols for field collections.

Adopted changes to Appendix E include the addition of site-specific toxic criteria for 20 sites. The sites and the affected toxic criteria are: Dixon Creek in segment 0101, selenium; Welsh Reservoir in segment 0404, aluminum; segment 0501 in Orange County, copper; segment 0505, from SH 149 in Gregg County downstream to the confluence of Brandy Branch, copper; segments 1001, 1005 (upper reach), 1006, 1007, 1013, and 2427, copper; segment 1005 (lower reach), copper; Tucker Bayou in segment 1006, copper; Greens Bayou tidal in segment 1006, copper; segment 1201 and tidal tributaries, copper; segment 1236, aluminum; Lake Creek Reservoir in segment 1242, copper; Linneville Bayou in segment 1304, selenium; Red Draw Reservoir in segment 1412, selenium; Kinney Bayou tidal and Jewel Fulton Canal tidal in segment 2481, copper and zinc; and a portion of segment 2484, selenium. Criteria in Appendix E have been recalculated to incorporate EPA conversion factors for metals.

The adopted changes in Appendices A-E were made to incorporate results of numerous studies, water quality monitoring activities and sampling assessments on individual water bodies conducted by the commission, river authorities, and in some cases, individual permittees.

FINAL REGULATORY IMPACT ANALYSIS DETERMINATION

The commission reviewed the rulemaking in light of the regulatory analysis requirements of Texas Government Code, §2001.0225, and determined that the amended rules 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 adopted amendments to Chapter 307 will require some 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 adopted 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 adopted 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 amended rules may meet the definition of a major environmental rule as defined in the Texas Government Code, the adopted rules do 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: exceed a standard set by federal law, unless the rule is specifically required by state law; exceed an express requirement of state law, unless the rule is specifically required by federal law; 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 adopt a rule solely under the general powers of the agency instead of under a specific state law.

Specifically, the standards and requirements within these rules were developed in order to conform to the CWA and the TWC. The adopted 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 amendments were not developed solely under the general powers of the agency but were specifically developed to comply with the directive of the TWC, §26.023, and to meet water quality standards required to be established under federal and state law. The standards are adopted under authority of the TWC, which authorizes and requires the commission to set water quality standards by rule. The TWC directs the commission to consider the existence and effects of nonpoint source pollution, toxic materials, and nutrient loading in developing water quality standards.

TAKINGS IMPACT ASSESSMENT

The commission has prepared a takings impact assessment for these rules pursuant to Texas Government Code, §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 TWC, §26.023. The federal CWA requires states to publicly review and revise the state's surface water quality standards every three years. The adopted rules and 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 rules 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 enhance water quality.

The specific purpose of this action is to satisfy state statute requirements, TWC, §26.023, and requirements of federal CWA, §303(d), and to more accurately assess water quality in the state and revise requirements to protect human health and water quality. The adopted rules substantially advance this stated purpose by establishing 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 amendments revising the state's surface water quality standards do not limit or restrict a person's rights in private real property.

CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

The executive director has determined that this rulemaking will affect an action/authorization identified in the Coastal Coordination Act Implementation Rules, 31 TAC, §505.11, and has considered applicable goals and policies of the Texas Coastal Management Plan (CMP) during the rulemaking process.

The commission has prepared a consistency determination for the adopted rules pursuant to 31 TAC, §505.22 and has found that the rulemaking is consistent with the applicable CMP goals and policies. The following is a summary of that determination. The rulemaking is 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 adopted 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 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 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. Submission of such information and data will help ensure that the authorized activities in the permit comply with all applicable requirements. Thus, the rulemaking is consistent with the administrative policies of the CMP. The rulemaking also provides clarity and identifies the circumstances in which the commission will consider and grant variances from the standards.

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

HEARING AND COMMENTERS

A public hearing was held in Austin, Texas on March 21, 2000 to receive public comments on the proposed revisions to Chapter 307. TNRCC staff members were available before and after the hearing to address specific questions from those who attended the hearing. It was also noted that the comment period for the proposed revisions would close at 5:00 p.m. on March 31, 2000.

The National Wildlife Federation, Texas Association of Metropolitan Sewerage Agencies, Texas Chemical Council (TCC), Texas Clean Water Action, Texas Committee on Natural Resources, Texas Municipal League, and several individuals complimented the work of the stakeholder workgroup which assisted the agency staff with the development of the proposed revisions.

The following commenters presented testimony in support of the proposed revisions which would create Segment 0615 in the Angelina River Basin with an intermediate aquatic life use designation: AFL-CIO of Texas; Angelina County; Angelina County Chamber of Commerce; Deep East Texas Development

Association; Donohue Paper Company; Freshwater Anglers Association; City of Huntington; International Association of Machinists and Aerospace Workers; City of Lufkin; Lufkin Independent School District; Paper, Allied Chemical, and Energy Workers; Texas Forestry Association; Texas Forest Landowners Council; and Texas Logging Council. Six individuals also presented oral testimony in support of this proposed change.

The following commenters presented oral comments expressing opposition to the proposed revisions which would create Segment 0615 in the Angelina River Basin with an intermediate aquatic life use designation: Clean Water Action of Texas; Lone Star Chapter of Sierra Club; National Wildlife Federation; Texas Association of Bass Clubs; and Texas Committee on Natural Resources. Six individuals also presented testimony in opposition to the proposed change. Some of these commenters also voiced a concern about a proposed change in the criterion for aluminum and the potential this might have on water quality of Sam Rayburn reservoir.

The Colorado Municipal Water District expressed some concern about the proposed criteria for selenium in Red Draw Reservoir, but reserved comment as to support or opposition.

A representative of Lakeway Parents Concerned about Sewage Spray made comments expressing support of proposed changes related to aquatic habitat and wetlands. They were opposed to any changes to the rule which were interpreted as lower standards with particular concern expressed about proposed changes related to bacterial indicators.

The National Wildlife Federation, the Texas Committee on Natural Resources, and Texas Clean Water Action expressed concerns about the proposed revision related to contact recreation, both the procedure for determination of standards attainment and the proposed change in indicator organisms.

The TCC presented testimony which expressed support for proposed revisions related to temporary variances, temporary standards, and inclusion of the water effects ratio for site-specific conditions with respect to metals criteria. They expressed concern about the inclusion of human health criteria for several compounds and recommended that information related to hardness and pH values be moved from the rule to implementation procedures as guidance. The TCC also made comments related to specific issues included in the implementation procedures guidance documents including use of whole effluent toxicity testing, once-through cooling water discharges, and screening for TDS.

The Texas Committee on Natural Resources expressed opposition to any changes in standards that represented a lowering of criteria, particularly as it relates to Sam Rayburn Reservoir, the Nueces River Tidal, and the Pease River. They and Texas Clean Water Action supported the proposed revisions related to inclusion of habitat and wetland protection, as well as the listing of seagrass propagation as a designated use in coastal waters.

The Texas Municipal League and the Texas Association of Metropolitan Sewerage Agencies registered a concern about the method in the proposed rule to determine standards attainment and procedures used to establish a screening guidance document. They also expressed opposition to the inclusion of habitat criteria in the proposed rule and concern about procedures used for the development and application of the implementation procedures guidance document, particularly as it relates to stormwater permitting.

ANALYSIS OF TESTIMONY

In addition to the oral and written testimony presented at the public hearing summarized in the preceding section, other written comments were received before the close of the public comment period. The majority of the comments from individuals were received in the form of cards and form letters or petitions. These comments are addressed in the discussion which follows. The companies and organizations which submitted comments are listed along with the appropriate acronym used in the following discussion with respect to each of their comments.

Companies and organizations that submitted comments included: Department of Air Force (AF), Angelina County, Angelina County Chamber of Commerce (ACCC), Angelina & Neches River Railroad Company (A&NR), Aristech, City of Arlington (Arlington), Arthur Temple College of Forestry at Stephen F. Austin University (ATCF), City of Austin (Austin), City of Baytown (Baytown), City of Canyon (Canyon), Canyon Regional Water Authority (CRWA), City of College Station (CS), Colorado River Municipal Water District (CRMWD), Consultants in Epidemiology & Occupational Health (CEOH), City of Corpus Christi (Corpus Christi), Deep East Texas Council of Labor (DETCL), Deep East Texas Development Association (DETDA), City of Dennison (Dennison), Diamond-Koch (D-Koch), Donohue Industries (Donohue), Dow Chemical Company (DOW), East Harris County Manufacturers Association (EHCMA), Eastman Chemical Company (Eastman), Eastman Kodak (EK), El Paso Public Service Board (El Paso PSB), Environmental Defense Fund (EDF), EPA, Fairbanks & Associates (F&A), United States Forest Service (USFS), Freshwater Angler Association (FAA), Friends United for a Safe Environment (FUSE), Galveston Bay Estuary Program (GBEP), Galveston Bay Foundation (GBF), Greater Houston Partnership (GHP), Gulf Coast Waste Disposal Authority (GCA), City of Henderson (Henderson), Houston Chronicle (HC), United States International Boundary

& Water Commission (USIBWC), International Brotherhood of Electrical Workers (IBEW), City of Jacksonville (Jacksonville), Jones & Carter, Inc. (J&C), Kerr-McGee Corporation (Kerr), City of Kerrville (Kerrville), Lakeway Parents Concerned About Sewage Spray (LPCASS), Lloyd, Gosselink, Blevins, Rochelle, Baldwin, et al (Lloyd Gosslink), Louisiana Pacific Corporation (LP), Lower Colorado River Authority (LCRA), Lower Neches Valley Authority (LNVA), City of Lubbock (Lubbock), City of Lufkin (Lufkin), Lufkin/Angelina County Economic Development Partnership (LACO), Lufkin Coca-Cola Bottling Company (LCCBC), Lufkin Convention & Visitors Bureau (LCVB), Lufkin Daily News (LDN), Main Street Lufkin (Lufkin), Martindale Water Supply Corporation (MWSC), City of Missouri City (Missouri City), Motiva Enterprises LLC (Motiva), City of Nacogdoches (Nacogdoches), Nacogdoches County Chamber of Commerce (NCCC), Nacogdoches Economic Development Corporation (NEDC), National Wildlife Federation (NWF), New Century Energies (NCE), City of North Richland Hills (NRH), Novartis, City of Odessa (Odessa), Paper, Allied-Industrial Chemical & Energy Workers (PACE), City of Pearland (Pearland), Perchlorate Study Group (PSG), Photo Marketing Association International (PMAI), City of Plainview (Plainview), Port of Corpus Christi Authority (POCCA), Public Interest Council of TNRCC (PIC), Rhodia, Inc. (Rhodia), Sabine River Authority (SRA), San Antonio Water System (SAWS), San Marcos River Foundation (SMRF), City of Schertz (Schertz), City of Sherman (Sherman), Sierra Club Houston Regional Group (SC-Houston), Sierra Club Lone Star Chapter (SCLS), Solutia, Inc. (Solutia), City of Sulphur Springs (Sulphur Springs), Tarrant Coalition for Environmental Awareness (TCEA), City of Temple (Temple), Texas AFL-CIO (TXAFL-CIO), Texas Association of Business & Chambers of Commerce (TABCC), Texas A & M University - Corpus Christi (TAMU-CC), Texas Center for Policy Studies (TCPS), Texas Chemical Council (TCC), Texas Coalition for Environmental Awareness (TCEA), Texas Committee on Natural Resources (TCONR), Texas Comptroller of Public Accounts

(Comptroller), Texas Corn Producers Board (TCPB), Texas Department of Agriculture (Agriculture), Texas Department of Economic Development (TDED), Texas Department of Transportation (TXDOT), Texas Farm Bureau (TFB), Texas Forest Industries Council (TFIC), Texas Forestry Association (TFA), Texas General Land Office (TGLO), Texas Logging Council (TLC), Texas Metropolitan Sewerage Agencies (TAMSA), Texas Municipal League (TML), Texas Parks and Wildlife Department (TPWD), Texas Shrimp Association (TSA), Texas State Soil and Water Conservation Board (TSSWCB), Texas Utilities/Reliant Energy/Central & Southwest Services (Utilities), Texas Water Conservation Association (TWCA), TXU Electric and Gas (TXU), University of Texas Health Science Center - Houston (UTHSC), University of Texas at Tyler (UT-Tyler), City of Vernon (Vernon), City of Wichita Falls (WF).

Comments were also received from Senator Phil Gramm, Senator Kay Bailey Hutchison, Senator Drew Nixon, Congressman Jim Turner, and Representative Jim McReynolds. Comments were also received from the mayor and city council members of the City of Lufkin.

GENERAL COMMENTS

A variety of general comments were received which addressed broader or additional concerns than single sections of the proposed revisions to the water quality standards.

Several comments pertained to other rules, procedural documents, or water quality management activities of TNRCC.

UT-Tyler requested that water bodies listed as impaired under the federal CWA, §303(d), be left on the list until we are certain that the water is safe.

The commission responds that changes in water quality standards which affect the list of impaired waters will continue to be subject to a use-attainability analysis, public comment, and approval by EPA. In addition, the commission will seek substantial public input on changes to the list of impaired waters.

Lufkin requested that TNRCC continue to monitor the watershed of Sam Rayburn Reservoir for abuses from out-of-compliance septic systems, wastewater treatment plants, and other sources of chemical spills.

The commission responds that TNRCC will continue to obtain as much monitoring in the watershed as available resources will allow, and that such monitoring will include effluent sampling during inspections and additional measures of regulatory compliance.

An individual opposed additional regulations, associated fees, and other regulatory actions which are driving small business people out of business.

The commission acknowledges that care is needed to address any potential burden that environmental regulations impose on small businesses and other affected entities. The commission also notes that water-quality goals set by the standards apply broadly to water bodies in the state, and the revisions to the water quality standards do not impose specific, direct costs to small

businesses such as additional fees. The potential indirect economic impact of the proposed standards were evaluated to the extent possible, and these evaluations were included in the preamble to the proposed revisions.

Several of the comments were recommendations for new additions to the standards. These recommendations included the development of numerical criteria for nutrients (TCONR), salinity standards for bays and estuaries (TCONR), toxic criteria for MTBE (LCRA), a new narrative criterion for assessing the biological conditions of water bodies (EPA), and adoption of regional indices of biological integrity for fish (LCRA).

The commission responds that narrative nutrient criteria will be considered for the next triennial revision of the water quality standards in coordination with the ongoing development of EPA guidance and requirements. Salinity criteria and freshwater inflow needs for bays and estuaries remains a broader issue, which may be considered for future revisions of the water quality standards in accordance with recommendations from ongoing interagency task forces. Toxic criteria for MTBE were preliminarily considered for the current standards revisions, but additional information and federal guidelines are needed before proposing and adopting criteria for MTBE. The commission will continue to use 15 micrograms per liter of MTBE for general screening purposes in drinking water sources. This aesthetic criterion is based on studies which indicate that MTBE can cause detectable taste and odor in water at concentrations greater than 15 micrograms per liter. New information will be evaluated and considered for screening purposes as it becomes available. With respect to assessing biological conditions, the commission notes that the adopted addition of biological integrity as a means of assessing standards compliance in

§307.9(f) does establish consideration of biological conditions. The development of regional indices of biological integrity will be considered in updates of the procedures for conducting receiving water assessments and related documents.

Several commenters asked that the commission not lower water quality standards and continue to protect water quality. Thirty-five of these comments were from individuals who submitted a form letter. NWF commented that reference sites for evaluating appropriate standards in individual water bodies did not adequately reflect background conditions, and that many reference sites were impacted by human-induced point and nonpoint sources of pollution. One commenter thanked the commission for controlling pollution.

The commission responds that the adopted revisions include major provisions which result in more stringent water quality standards, such as most of the adopted changes to statewide toxic criteria to protect human health criteria. Most of the other changes in statewide standards are clarifications of existing provisions or the addition of new provisions which do not decrease the stringency of the water quality standards. A number of the adopted changes in site-specific standards in Appendices A, D, and E of §307.10 do establish criteria which are less stringent. The great majority of these changes use site-specific information and/or the results of use-attainability analyses. The use-attainability analyses in these specific instances rebut the conservative presumptions which apply “across-the-board” until such site-specific information is available. In order to implement protective statewide presumed standards, such as the presumed “high aquatic-life use” for perennial streams in §307.4(h)(3), the standards include reasonable provisions and mechanisms for addressing water bodies where standards cannot be reasonably

attained under relatively unimpacted conditions. Criteria for particular water bodies are changed only if sufficient scientifically valid data confirms that the existing site-specific or presumed standards are inappropriate. With respect to the validity of reference sites to establish relatively unimpacted background conditions, the commission will continue to devote substantial resources to establish the best reference conditions available for use attainability analyses and continue to improve and clarify sampling procedures and evaluations to assign site-specific standards. Additional discussion concerning site-specific standards changes is provided in the response to comments on §307.10.

NWF expressed concern that key components of the water quality standards were being moved to the implementation procedures and that because of this, there would be less public input. TCONR commented that the standards implementation procedures should be considered as a rule.

The commission responds that the standards implementation procedures contain a comprehensive level of detail and guidance which is not generally appropriate for the water quality standards. The commission's view is that the implementation procedures should be less prescriptive and more flexible than the rules set forth in Chapter 307. In the concomitant revisions of the standards implementation procedures, numerous changes are being considered to reduce and avoid inflexibility in the guidance. Significant opportunity for public input into revisions to the implementation procedures was provided and will continue to be provided in the future.

NWF expressed concern that changes in site-specific standards to reflect actual aquatic-life uses of less than high quality also involve a corresponding loss of "Tier 2" antidegradation protection for these

water bodies; and this loss of antidegradation protection was not considered when evaluating the changes.

TNRCC responds that specifying categories of water bodies for Tier 2 protection under the antidegradation policy is in accordance with EPA regulation in 40 CFR Part 131, as further explained in the Advanced Notice of Public Rulemaking in 40 CFR Part 131 (*Federal Register*, July 7, 1998). The commission notes that coupling the applicability of the antidegradation policy with designating aquatic-life uses in §307.4 and §307.10 ensures that the great majority of the perennial waters in the state are afforded Tier 2 protection and that a change in the applicability of Tier 2 is determined through a use-attainability analysis and site-specific standards revision in §307.10. The commission will continue to evaluate the applicability of Tier 2 of the antidegradation policy, in order to ensure that appropriate water bodies are included. Additional discussion is provided in responses to comments on §307.10 - Appendix A.

Several commenters, in addition to their own comments, indicated their support of other organizations' comments. Six commenters (Cities of Odessa, Pearland, Canyon, Jacksonville, Kerrville, and North Richland Hills) supported comments made by TML and TAMSA. Two commenters (SAWS and Vernon) supported the technical comments of TAMSA. Sulphur Springs supported the TML's comments. DOW supported the comments of the TCC. TCEA echoed the comments made by TCONR.

SECTION 307.2

GCA, EHCMA, GHP, DOW, the Utilities, EPA, TCC, and Solutia commented that they support the proposed revisions to §307.2 since it allows temporary variances and temporary standards. Some of these commenters described the processes as a way to resolve permitting problems in limited, problematic situations.

The commission agrees with these commenters.

EPA mentioned that it will continue to review and approve variances and variance extensions.

The commission acknowledges this comment and notes that EPA and the commission have a formal memorandum of agreement which describes this oversight requirement, as part of the existing TPDES permitting program. This agreement is described in §307.2(d)(5)(C).

SC-Houston recommended that the commission not allow extensions to variances and indicates opposition to the proposal for temporary standards, since temporary standards encourage the commission to lower standards for industry or large polluters.

No change to the rules has been made based on these comments, because temporary variances are needed to avoid unfair imposition of final effluent limits in a permit when evidence exists that the current standard is inappropriate. The allowance for a variance, when justified, is particularly important when presumed standards are stringent. An example is the presumed standard of high quality aquatic life for perennial, unclassified streams. In those cases where this standard can't be attained even under relatively unimpacted conditions, it would be unfair to use this presumed

standard to set a final permit limit that might be irrevocable under the antibacksliding provisions of the federal CWA. Extensions to variances are sometimes necessary to allow time for the commission to adopt site-specific revisions to the surface water quality standards. Typically, this is done on a triennial basis requiring a substantial investment of time and commission resources. Therefore, extensions to variances are needed when a permittee has conducted a study with due diligence and the results support a less stringent standard. The results supporting the less stringent standard cannot be put into effect until completion of the revisions to the water quality standards. The commission is unaware of any administrative procedures it could use as an alternative to accomplish the same result of authorizing discharges while a site-specific standard is being considered and formally proposed. The provision allowing for temporary standards is consistent with federal water quality regulations. The commission anticipates situations where the provision may be a necessary administrative process to resolve complex permitting issues. For instance, technology may not have advanced to the point where any discharger into a water body can practically meet a standard. However, at regular intervals, the ability to attain the standard must be reviewed and renewed. This affords all interested parties the ability to participate in the process to renew or remove any temporary standard. The commission agrees that extensions to variances should be provided only in cases where justified and where needed to allow time for revisions of the standards.

SC-Houston recommended that §307.2(d)(5)(E) be revised to indicate that a compliance schedule “must” be specified in a successive permit.

The commission responds that the option to disallow an additional compliance period is needed.

As proposed, a compliance schedule will not be allowed when the permittee has not complied with the permit terms relating to the temporary variance.

SC-Houston recommended that the commission, rather than the executive director, make the decision on a temporary variance. In this manner, the decision is subject to a more open forum.

The commission agrees with the commenter and notes that the proposed rule, as well as the existing practice of the commission is consistent with the commenter's recommendation. This requirement in §307.2(d)(5) states that "...the commission may allow a temporary variance to the water quality standards in a permit for a discharge of wastewater."

The Utilities recommended that proposed §307.2(d)(5)(B) be modified to clarify which public notices will include the proposal of a temporary variance. The Utilities noted that some variance requests will occur after an application is administratively complete and the "Notice of Application and Preliminary Decision" public notice is the most appropriate time for soliciting comments on a proposed variance.

The commission agrees with the general intent of the commenter. However, the specific term "Notice of Application and Preliminary Decision" may not be applicable to all pending and future permit actions, so the proposed language is slightly changed to indicate that a variance request will be included in a public notice during the permit application process.

GBF and NWF recommended that §307.2(d)(5) be modified to strengthen the proposed language to indicate that a variance request must be justified based upon scientific information.

The commission agrees with the commenters and has made the requested change.

NWF recommended that §307.2(d)(5)(A) be modified to clearly preclude a temporary variance in a permit which would be amended to allow for an expansion and further loading in a discharge to which the variance pertains. NWF suggested it is unclear what the term “existing” discharge means.

The commission responds that the term “existing discharger” refers to a discharger that is discharging at the time of a permitting action. This could include a discharger seeking an expansion in its pollutant discharge authorization. It is atypical for the commission to process or to approve a variance that would allow an increase in loading in the interim while the appropriate water quality standard is under investigation. Granting such a variance places a higher risk both on existing water quality, which might deteriorate relative to the existing standard, and on the discharger, who will construct facilities that may or may not be able to meet the eventual water quality goal. However, the commission disagrees that “existing discharger” should be narrowed to include only existing authorized loadings. Also, a measure of flexibility is appropriate. For example, there may be a need to address expansion caused by municipal growth, where there is a preliminary determination that the existing standard is not appropriate. Therefore, the commission retains the flexibility to address specific situations. Due to the potential risk to water quality, this type of case-by-case determination will necessarily be used only in rare instances

where other administrative or technical remedies are not feasible and where adverse consequences to water quality are not anticipated.

TML/TMSA recommended that §307.2(d)(5)(C) be modified to strike the wording that indicates the EPA must approve temporary variances.

The commission responds that EPA approval remains in the adopted rule. EPA and the commission have a formal memorandum of agreement which describes this oversight requirement, as part of the existing TPDES permitting program.

NWF and TPWD recommended that §307.2(d)(5)(D) be modified to specify that any permit which is the subject of a variance must protect existing uses under Tier 1 of the antidegradation provisions.

The commission notes that such protection is afforded under its existing and proposed antidegradation policy. However, the commission agrees that further clarification of its intent is needed and has modified the language to incorporate the request.

NWF recommended that §307.2(d)(5)(D) be modified to specify that a permit containing a temporary variance not be administratively continued when a permittee has failed to comply with the variance provisions of an expired permit.

The commission must comply with the Texas Government Code, §2001.054(b), of which prevents a permit from expiring if a permittee makes timely and sufficient application to renew a permit or

for a new permit for an activity of a continuing nature. Commission rules §305.63(a)(4) and §305.65(a)(4) reflect this statutory requirement. These provisions could result in a permittee's authorization to discharge, under a permit containing a variance, to continue in effect until a final decision is made on the renewal application. The commission plans to take action to avoid or minimize this type of administrative continuance when a permittee has failed to comply with the terms of its variance.

Under §305.63 and §305.65, a permittee must apply to renew its permit at least 180 days before the permit's expiration date. When renewal applications are received, it has been the agency's historical practice to promptly process the applications. The agency plans to continue this practice. The commission views the failure to adhere to the variance requirements as a serious matter, considering the potential impact of a discharge which could degrade existing water quality in receiving waters. The commission believes the response to this situation should be to promptly process the application to renew the permit with the effluent limitations based on the existing standard and to also consider enforcement action against the discharger due to noncompliance with the variance permit requirements.

The commission amended this section to revise the variance procedures in a manner that complements the assumption of National Pollutant Discharge Elimination System (NPDES). The terms and procedures for variances changed slightly with NPDES delegation. The commission no longer sets final effluent limitations into a permit with a variance, but the rule has been amended to specify that in the subsequent permit, a permittee will not receive a compliance period and an extension of interim effluent limitations when the requirements of the variance are unfulfilled.

NWF recommended that §307.2(d)(5)(E) be clarified to describe that a variance extension must be approved only when a study supporting the request has been completed by the permittee and the commission agrees the study shows the standards change is justified. TPWD commented similarly and stated that language is needed to make it clear that the extension of a variance requires commission approval.

The commission agrees with these comments and notes that both provisions currently exist and are retained in the adopted amendments. The commission has modified the adopted language to make it clear that the extensions are approved by the commission and that the basis of the approval is a completed study supporting the standards change.

EPA recommended that §307.2(e) and (g) be revised to include up-to-date references to the standards implementation procedures.

The commission agrees and the appropriate wording changes to both subsections have been made, as requested by the commenter.

NWF recommended that the commission revise proposed §307.2(f) to specify that interim effluent limitations are not allowable in situations where a permittee is requesting an increase in loading or discharge volume.

The language referred to in this subsection was not proposed for revision, and the existing language is reasonable and appropriate. The existing rule identifies that interim discharge limits *may* be established upon permit amendment or permit renewal. The commission establishes interim effluent

limitations only when necessary to allow time for construction of new, more stringent treatment which might be necessary when a new standard or a revised standard is imposed by commission requirements. It does not allow interim effluent limitations when a permit amendment for an expansion is the sole purpose for the construction of new treatment. However, the existing rule language addresses situations where the following two situations occur at the same time: (1) a permittee must expand its treatment capability, for instance due to population growth, and (2) the commission must implement a new, more stringent standard requiring additional treatment capability. For these reasons, the commission has not revised the rule based upon this comment.

NWF suggested that the commission revise proposed §307.2(f) to specify that the “executive director and the commission, as appropriate” be named as decision makers who may establish interim effluent limitations. Austin suggested that the term “executive director” be defined in the rule.

In response, the subsection has been revised to note that either the executive director or the commission will act to establish interim effluent limitations. The term “executive director” has not been added to the definitions, since this term is already defined in Chapter 3 of this title (relating to Definitions). There, all general terms used throughout commission rules are established.

Austin recommended that proposed §307.2(g) specify that a temporary standard has certain geographical boundaries.

The rule as proposed does describe this mechanism as applying to particular water bodies. However, to better clarify how the mechanism will be implemented, the commission has revised the subsection

to indicate that specific reasons and additional procedures for justifying a temporary standard are provided in the standards implementation procedures.

SC-Houston requested that proposed §307.2(g) define what is meant by “reasonably attained.”

The commission responds by removing the word “reasonably.” The question of whether a standard under question can be attained is already described in detail in federal regulations cited in this subsection of the rule. Also, to better clarify how the mechanism will be implemented, the commission has revised the subsection to indicate that specific reasons and additional procedures for justifying a temporary standard are provided in the standards implementation procedures.

SECTION 307.3

Numerous comments were received on proposed changes to the definitions in §307.3.

With respect to the definition of “attainable use” in §307.3(3), Austin and POCCA requested additional guidance and procedures to be used to determine and review attainable use. SC-Houston asked that the term “reasonably achieved,” which is used in the definition, also be defined. TML/TAMSA suggested adding an additional clause to the definition to indicate that the attainable use is “ ... the designated use contained in the standards unless it is determined that attaining the designated use is not feasible because of the factors identified in 40 CFR Section 131.10(g).”

The commission responds that guidance and procedures to determine and review attainable use, including how to determine what can be “reasonably achieved,” are described in the standards

implementation procedure and related documents. The wording of the adopted definition has been changed in order to note that the attainable use may not be equivalent to the designated, existing, or presumed use.

DOW, Eastman, TML/TAMSA, and TCC commented on the proposed revision of the definition of “best management practices” (BMPs) in §307.3(a)(6). GHP and TCC requested that examples of BMPs be removed. Novartis specifically requested examples of agricultural BMPs. Eastman and TACC stated that BMPs are site-specific, and Sulphur Springs stated that BMPs should be based on demonstrated measures. SC-Houston wanted “maximum extent possible” to be defined. GHP, TCC, and Utilities requested the removal of “maximum extent possible” from the definition of best management practices.

In response, the commission concurs that BMPs are site-specific and are based on industry standards. Which BMPs are used by the discharger are normally at the discretion of the discharger, as long as the BMP achieves the standard. If a BMP is proven ineffective, alternatives or additional BMPs may be recommended by the commission. BMPs are a preventative measure and do not necessarily require a demonstrated corrective need. The term “maximum extent practicable” is retained, since it is intended to provide for flexibility and effectiveness of BMPs and to note that BMPs should be reasonably attained. The definition of best management practices is adopted as proposed.

For the definition of “bioconcentration” factor in §307.3(a)(8), EPA requested that the definition state that the mechanism for uptake in bioconcentration is only through water.

In response, the commission adopts a definition which indicates that a bioconcentration factor applies to a chemical “... which is absorbed directly from the water.”

Austin requested the term “biological integrity” in §307.3(a)(9) be related to the species composition, diversity, and functional organization of a community of organisms that would occur if a water body were relatively unaffected by human activities. TPWD requested that biological integrity be related to “that of the natural habitat of the region.”

In order to address these requests, the phrase “contributes to overall stability and ecological vitality” was replaced by “in an environment relatively unaffected by pollution” in the adopted definition of biological integrity.

Concerning the definition of “chronic toxicity” in §307.3(a)(10), EPA recommended that the last sentence be modified to more explicitly indicate that seven or more days is applicable to “some chronic toxicity tests” rather than to “chronic toxicity.”

In response, the commission has changed the definition of chronic toxicity as requested, since toxicity tests are the primary means of measuring chronic toxicity.

EPA recommended using 7Q10 or 4Q3 streamflow in defining “critical condition” in §307.3(a)(15).

The commission responds that the critical condition for many of the numerical criteria is specified in §307.8 to be 7Q2 streamflows (which are low flow conditions that recur for a seven-day period once

every two years instead of once every ten). A 7Q2 critical condition is appropriate for streams in Texas for several reasons: (1) the Texas Surface Water Quality Standards apply relatively stringent criteria for toxicants, dissolved oxygen, and other substances to any perennial stream, and the conservative assumptions of these criteria mitigate exceedances at low stream flows with a recurrence at two-year intervals; (2) assumptions for dissolved-oxygen models are also relatively stringent; (3) procedures to calculate toxic effluent limits are also stringent -- particularly with respect to incorporating effluent variability; (4) major discharges in Texas are required to pass 24-hour biomonitoring tests with undiluted effluent; (5) streams and rivers where major discharges occur are typically effluent dominated during average dry-weather flows, and even using 7Q2 as the critical condition, major discharges in Texas are frequently required to achieve highly advanced treatment for biochemical oxygen demanding substances and for ammonia, and to pass effluent biomonitoring for chronic toxicity with little or no instream dilution allowed; and (6) intermittent streams are defined in the water quality standards as streams having a 7Q2 flow of less than 0.1 cfs, and less stringent criteria for dissolved oxygen and toxicants apply to intermittent streams; logically, the frequency at which numerical criteria may be exceeded should be the same as the frequency of near-zero flows which are used to define when streams are intermittent.

TPWD recommended modification of the definitions of "*E. coli*," "Enterocci," and "fecal coliform" in §307.3(a)(19), (21), and (24) to note that these bacteria indicate "the potential presence of pathogens" rather than "potential pathogens."

The commission agrees that the suggested phrase is more accurate, and this change has been made in the adopted definitions of *E. coli*, Enterococci, and fecal coliform.

EPA, NWF, SC-Houston, TCONR, and TPWD commented on the definition of “existing use” in §307.3(23). Commenters were particularly concerned that the definition as proposed did not clearly indicate that existing uses should be those uses which exist on or after November 28, 1975 as specified in EPA regulations.

The adopted definition of “existing use” has been reworded as suggested by these comments.

Numerous comments were received concerning the definitions of “general recreation” in §307.3(a)(26) and “high-use recreation” in §307.3(a)(29). NWF, TCPS, and TPWD, Austin, and EPA expressed concern about the imposition these categories for contact recreation, and Austin, EPA, NWF, and TPWD expressed concern about how these new categories of recreational suitability would be determined. The Utilities supported the new recreational use categories.

In response, the commission notes that the approach of measuring recreational indicators only during periods when recreation is physically and hydrologically suitable will continue to be developed for a future revision of the water quality standards. However, the definitions of general and high-use recreation have been deleted from the adopted rule for this triennial revision. A more detailed presentation of comments and the commission’s responses on recreational uses and indicators is provided in the following discussion concerning §307.7(b)(1).

For the proposed definition of “incidental fishery” in §307.3(a)(30), GHP and TCC requested that evidence of an existing or potential fishery be demonstrated as a requirement of an incidental fishery. Utilities and Solutia specified that evidence of a commercial or recreational fishery be a requirement for incidental

fishery. DOW suggested that the definition of incidental fishery should be applied only to waters which are open to the public, and that ditches and waste streams on private land are not meant for recreational or commercial fishing.

The commission responds that the existence of an aquatic life “use” is a reasonable determination of water bodies that constitute an incidental fishery, and this approach provides a practical means of assessing when criteria to protect an intermittent fishery should be applied. Streams which are large enough to have clear evidence of recreational fishery would be subject to the more stringent criteria that apply to a sustainable fishery. Because of the mobility of fish, it is difficult to protect fish tissue from contamination in waters with public access without protecting an incidental fishery which doesn’t have public access. Therefore, the definition of incidental fishery is adopted as proposed.

SC-Houston opposed inclusion of the proposed definition of “intermittent with perennial pools” in §307.3(33). TML/TAMSA requested that a quantitative basis for the determination that perennial or persistent pools are present.

The commission responds that this definition was proposed in the standards because more stringent criteria are applicable to intermittent streams with perennial pools that create an aquatic life use. The commission does note that further evaluation is needed of procedures to better define perennial pools. However, this evaluation is not sufficiently well defined to add to the water quality standards at this time, and the definition of intermittent with perennial pools is adopted as proposed.

In the proposed revisions to the definition of “mixing zone” in §307.3(37), EPA asked that the definition specify that chronic toxic criteria may be exceeded in the mixing zone but not beyond it. NWF commented that the definition creates ambiguity about which criteria are not applicable in mixing zones.

The commission agrees with the comments, and the adopted definition of mixing zone defines the applicability of chronic toxic criteria and also includes a more specific reference to the section of the standards where standards applicability in mixing zones is described.

Austin supported the proposed removal of the definition of “no significant aquatic life use” in §307.3.

The commission responds that the term “no significant aquatic life use” is removed, and that the corresponding proposed definition of “significant aquatic life use” will remain in the adopted rule.

Concerning the definitions of “pollutant” in §307.3(42) and “storm water discharge” in §307.3(58), there were a multitude of comments opposing the exclusion of agricultural runoff in the definitions. Commenters opposed to the exclusion of agricultural runoff from the definition of pollutant included Austin, CS, Corpus, Dennison, EPA, Henderson, NWF, SC-Houston, Sulphur Springs, Plainview, Missouri City, and WF. CS, Corpus, Dennison, Sulphur Springs, and WF opposed the exclusion of agriculture from the definition of storm water discharge. The majority of the comment letters indicated that the exclusion of agriculture from these definitions would result in an unfair burden to municipalities, particularly for water bodies listed as impaired, to control nonpoint source pollution and reduce loading. TCEA and TCONR also suggested that the definition of pollutant was too narrow and provided broader, more inclusive definitions. POCCA

suggested excluding decant water from dredged material placement areas in the definition of pollutant.

NWF commented that the definition of storm water discharge should be excluded from the standards.

The commission responds that the proposed definition of pollutant is consistent with the definition in TWC, §26.001, which includes the agricultural runoff exclusion. However, that definition is not appropriate for the term as it is used in the water quality standards. The term pollutant was not defined in the TWC until the agency assumed the NPDES program on September 14, 1998, and “pollutant” has not been defined in this chapter. As used in Chapter 307, “pollutant” has never excluded agricultural runoff.

The commission agrees with the commenters that the statutory definition of “pollutant” that was adopted in 1998 to delineate the limits of the NPDES permitting program is too narrow in scope for use in this chapter. The exclusion of agricultural runoff is inappropriate due to its inconsistency with existing TWC, §26.023, which states “...the commission shall consider the existence and effects of nonpoint source pollution...in developing water quality standards....” Therefore, the definition of pollutant has been deleted from Chapter 307. In its place, the commission is adopting the definition of “pollution” as it is stated in TWC, §26.001. Additionally, the term “pollutant” has been replaced with “pollution” in all appropriate places throughout this chapter. The term was suggested in comments on proposed §307.5, and is included in these definitions for convenience and clarity.

With respect to other comments, the commission responds that the proposed specificity of the definitions provides a useful tool for the permitting process, and the definition is included in the

adopted revisions. Decant water from dredged material cannot reasonably be excluded from the definition of pollutant due to the potential to contribute total suspended solids in runoff.

NWF commented that the proposed definition of “point source” in §307.3(43) is not necessary.

The commission responds that although this term is defined in the TWC, §26.001(21), the inclusion of the definition provides a convenient reference in §307.3, and the proposed definition of point source is adopted.

NWF requested that the proposed definition of “public drinking water supply” in §307.3(45) be broadened to also include water bodies that are designated for this purpose (even if a drinking water intake is not yet in existence).

The commission agrees and the suggestion was incorporated into the adopted definition of public drinking water supply.

NWF commented that the proposed definition of “saltwater” in §307.3(46) is overly broad and should be worded so that measurable tidal influence constitutes saltwater, that is provided that water bodies with a salinity of less than two parts per thousand are not normally considered to be saltwater.

The commission responds that the two measures of saltwater (tidal influence plus salinity) need to be available independently in order to adequately assess water bodies with limited data, and the proposed definition of saltwater is adopted.

EPA, FUSE, GBF, UT-Tyler, TCEA, TCONR, TCPS, and TPWD supported the definition of “seagrass propagation” in §307.3(48) as an aquatic life use. One hundred twenty-three individuals submitted letters supporting the inclusion of “seagrass propagation” as an aquatic life use. An additional 287 individuals included support of this use as one of the proposed changes. EPA, GBF, NWF, and TCPS suggested that this use be designated for specific water bodies in Appendix A of §307.10. EPA, GBF, NWF, TCPS, and TPWD recommended protection of seagrass use where seagrass historically occurred. SC-Houston requested clarification of the term “significant stand.”

The commission responds that the term “existing use” is added in the adopted definition of seagrass propagation. The term “existing” incorporates consideration of historical uses, since existing uses are defined in §307.3 as those occurring since November 28, 1975. Inclusion of seagrass propagation in Appendix A will be considered in the next triennial revisions due to the timing of request late in the revision process and to allow time for full public review and comment. The term “significant stand” is left in the adopted definition as proposed, since additional experience with applying seagrass use is needed before a more quantified definition of “significant” can be developed.

TPWD commented that the definition of “significant aquatic life use” in §307.3(53) should include the provision that “some provision to protect aquatic life applies to every water body in the state” without noting exceptions to this provision.

The commission responds that the intent of citing exceptions to protection of aquatic life was to note that criteria for acute toxicity may be exceeded in zones of initial dilution at discharge points. However, the commission concurs that the general statements in this definition will not contradict the

exemption afforded to zones of initial dilution, and this suggestion is incorporated into the adopted definition of "significant aquatic life use."

With respect to the definition of "surface waters in the state" in §307.3(60), EPA requested that the territorial limits of surface waters be more clearly explained.

In response, the commission adds a note in the definition of "surface waters in the state" that territorial limits of the state are from the mean high water mark out to 10.36 miles into the gulf.

The commission acknowledges that EPA contends the state's delegated NPDES permitting authority extends only three miles offshore. Even if this is true, and the commission does not agree that it is, that is a matter of the boundaries of the administrative powers delegated under a particular statute; it does not change or limit the state's territorial jurisdiction.

With respect to the proposed definition of "total maximum daily load" (TMDL) in §307.3(64), EPA considered the definition acceptable but noted that a previous draft of the revised standards contained a more descriptive definition. TPWD and USIBWC commented that the term "limit" in the definition should be changed to "load."

In response, the commission has changed "limit" to "load" in the adopted definition of total maximum daily load, but the definition is not expanded in order to avoid possible contradictions with other, more detailed state and federal definitions of the same term.

EPA suggested that the definitions of “total toxicity” in §307.3(67), “toxicity” in §307.3(68), and “toxicity biomonitoring” in §307.3(69) are confusing and should be consolidated.

The commission responds that these definitions are needed to explain the different terms which are in common usage to describe effluent toxicity testing.

Several comments addressed proposed revisions to the definition of “water-effects ratio” in §307.3(70). Eastman, TCC, and Utilities suggested that the term “lab toxicity tests” in the definition would be more accurately stated as “synthetic laboratory dilution water.” POCCA suggested deleting the sentence which stated that “the water-effects ratio can be used to establish site-specific acute and chronic criteria to protect aquatic life from toxicity.”

The commission responds that the sentence describing the general use of water-effects ratio is useful to provide a basic context for the purpose of the test. The commission concurs that the term “synthetic laboratory dilution water” is more accurate than “lab toxicity tests.” This change is incorporated in the adopted definition but without the term “synthetic” because it would preclude the use of other dilution water that was not synthetic.

With respect to the proposed definition of “wetlands water quality functions” in §307.3(73), SCLS, Austin, TCONR, GBF, FUSE, TCPS, NWF, SC, TCEA, TGLO, TPWD, UT Tyler, and 287 individuals supported adding the definition. DOW, GHP, POCCA, TWCA, and Utilities objected to adding the definition indicating that it was unnecessary, since wetlands are already explicitly included in the standards. There were also concerns about the implications of habitat protection, lack of defined criteria for wetlands,

and whether there was adequate authority to regulate water quality by regulating land use. SC-Houston suggested that shading be included as a wetlands water quality function. TCPS suggested that the definition should apply to existing, designated, and attainable uses. NWF suggested that the definition be expanded by including habitat for terrestrial life (in addition to aquatic life). POCCA suggested that the definition note that wetland water quality functions are affected by size, location, degree, and type of cover and proximity to other similar landscape features.

The commission responds that wetlands are statutorily classed as waters in the state and serve important water quality functions that are justifiably protected under the water quality standards. The definition describes many of those functions, which directly and indirectly, protect and maintain water quality. Habitat beneficial to aquatic and aquatic-dependent organisms is an attribute of intact, functional wetlands. Wetlands are waters in the state, and as with other water bodies, their protection requires thoughtful planning of surrounding land use. The commission also responds that suggestions for further additions or qualifications may have merit for further public evaluation, but the definition as proposed is reasonably inclusive of primary wetland functions. The proposed definition of wetland water quality functions is adopted.

Several commenters suggested definitions of terms which were not in the proposed revisions of §307.3. SC-Houston suggested that “riparian habitat” and “habitat protection” be defined, and that a broader definition of “fishery” be included. NCE suggested that “geometric mean” be defined. TCC and Utilities suggested a definition for “ephemeral stream.” EPA suggested that a definition of “osmotic imbalance” be added with respect to effects of dissolved salts on toxicity tests.

The commission responds that these suggestions for new definitions may be potentially useful. However, the existing and proposed definitions establish an adequate explanation of terms for this triennial revision of the water quality standards. After additional development, definitions for these terms can be publicly considered at the next revision of the standards.

The commission adopts §307.3 with the previously noted changes and the definitions renumbered appropriately.

SECTION 307.4

NWF objected to the language used to indicate that properly authorized dredge and fill activities were not a violation of the aesthetic parameter for settleable solids at §307.4(b)(3). They argued that the proposed language clarified that dredge and fill activities were exempt from the requirements of §307.4(b)(3), without providing for the evaluation, minimization, and mitigation of impacts as appropriate. The Utilities commented that the language was ambiguous and implied that activities authorized by a 404 permit might still violate water quality standards. They expressed concern that this raised issues of finality of a 404 permit.

The commission agrees with these comments and has modified the language. It is the commission's intent to indicate that activities authorized under Section 404 of the federal CWA be evaluated for compliance with the mitigation sequence of avoidance, minimization and compensatory mitigation. The mitigation sequence is a federal requirement under the 404(b)(1) Guidelines. The state also has adopted those criteria for evaluating whether a proposed Section 404 permit should be certified under Section 401 of the CWA as consistent with the antidegradation policy of this chapter. Since both the

federal and state processes are triggered by the federal CWA and include the mitigation sequence, the revised §307.4(b)(3) simply states that this section does not prohibit dredge and fill activities that are permitted in accordance with the federal CWA.

EPA and NWF recognized a typographical error in the §307.4(d) reference to §307.4(k).

Section 307.4(k) was changed to §307.4(l). Section 307.4(d) has been corrected to reflect this change.

NWF suggested making it clear in §307.4(d) that “additional” toxic criteria are identified in other sections of these rules.

The commission agrees with this and, consistent with the existing rule language, has retained “additional” in the description of other toxic substance requirements.

SC-Houston supported the proposed language relating to acute and chronic toxicity in §307.4(d). Utilities and TCC supported the changes to §307.4(d) with some suggested modifications to address mixing zones and the zone of initial dilution. Eastman, GHP, EPA, Utilities, and TCC raised issues with the applicability of acute criteria to all waters in §307.4(d). NWF suggested that all references to aquatic life in this section be changed to terrestrial or aquatic life to be consistent with the first sentence of the section.

A reference to the detailed discussion of acute criteria at §307.8(a)(2) was added to §307.4(d) to make the two sections consistent. The commission disagrees with changing all references to aquatic life to include terrestrial life. The first sentence of this section establishes the general criteria for toxic

substances. Numeric criteria for aquatic life and human health are specified in §307.6. While these criteria are generally protective of terrestrial or aquatic life, the commission reserves the opportunity to make case specific determinations of the necessary level of protection for specific toxic substances for terrestrial life under the general criteria established in the first sentence.

EPA suggested adding a reference in §307.4(e), concerning the general narrative criteria for nutrients, to the TNRCC screening guidance for assessing instream compliance with the water quality standards.

The commission responds that assessment of nutrient conditions is an important component of applying the narrative protections of §307.4(e). However, instream assessment of the other potential pollutants in the general criteria is also important, and the applicability of the guidance document to narrative parameters is noted in §307.9(g).

EPA recommended adding language to §307.4(f) to address temperature requirements for cooling water impoundments.

The commission responds that the existing narrative provides an appropriate approach for cooling water impoundments. Existing language of this section states that cooling water impoundments are exempt from temperature requirements, and must not interfere with the reasonable use of such waters. The commission did not propose changes to this language and cannot consider changes of this nature for adoption.

SC-Houston expressed concern over the term “balanced and desirable” in §307.4(g)(3). They commented that it was arbitrary and would be used as a weasel phrase. They requested definition of the term.

The commission agrees that there is a need for consistent use of terms relating to aquatic life uses.

The commission has modified the language in this section to make it clear that salinity gradients in estuaries will be maintained to support attainable estuarine dependent aquatic life uses.

J&C opposed the presumption in §307.4(h)(3) that perennial streams have high aquatic life uses. They acknowledged the opportunity to set site specific standards where the presumption can be rebutted but suggested that effluent dominated streams, particularly in the Houston area, be presumed to have limited aquatic life uses. NWF commented that the term “maintained” in the last sentence of §307.4(h)(3) created ambiguity regarding attainable uses and suggested the term should be replaced with “protected.”

The commission disagrees with changing the presumption of high aquatic life use for perennial streams. The aquatic life use presumptions are based on statewide ecoregion studies. While the presumption language is shown as a new section, this presumption is not changed from the existing rule. To help address streams where attainable life uses are less than high, TNRCC has conducted a number of receiving water assessments and established site-specific standards in Appendix D in §307.10. The commission agrees that the term protected is more appropriate because it includes attainable uses and existing uses. This change has been made to the rule.

SC-Houston commented that they were opposed to the presumption that intermittent streams have no significant life. TPWD raised concerns whether the presumption that intermittent streams with perennial

pools have limited aquatic life uses affords sufficient protection for those streams. TPWD also questioned whether the presumption regarding intermittent streams with perennial pools had been validated by studies and data. NWF commented that the term “maintained” in the last sentence of §307.4(h)(4) created ambiguity regarding attainable uses and suggested the term should be replaced with “protected.”

The commission disagrees with changing the presumption for intermittent streams. While the presumption language is shown as a different section, this presumption is not changed from the existing rule. The definition of significant aquatic life use recognizes that some aquatic life is expected to be present in water bodies not designated for a specific category of aquatic life use. However, it also identifies some provisions to protect aquatic life in any water body. These aquatic life use presumptions are based on statewide ecoregion studies. The commission agrees that the term “protected” is more appropriate because it includes attainable uses and existing uses and this change has been made to the rule. The reference to development of additional definitions of significant aquatic life, perennial pools, and seasonal uses in the standards implementation procedures has been deleted.

Austin, EPA, F&A, FUSE, GBF, NFW, SCLS, TCEA, TCONR, TCPS, TPWD, and 287 individuals supported the adoption of the proposed habitat criteria in §307.4(i). Many of these commenters identified the proposal as meeting the federal CWA’s goal for restoring and maintaining the physical and biological integrity of water. Several commenters also identified the proposal as a clarification of existing procedures which include consideration of habitat in determining aquatic life uses.

The commission agrees that the proposed habitat language is consistent with the goal of the federal CWA regarding the physical and biological integrity of water in the state. The commission also agrees that the language is a better description of existing procedures which consider habitat in determining aquatic life uses, not a new feature. Since the mid-1980s, habitat has been a consideration in determining appropriate aquatic life uses, such as in a use attainability analysis (UAA). The commission points out that habitat is the determining factor that justifies many of the proposed site specific aquatic life classifications proposed in Appendix D of §307.10.

Several commenters expressed concern that the proposed language only addressed “existing” uses and suggested that it should be consistent with other sections of the rule by addressing designated and attainable uses also.

The commission agrees that the term “existing” as a modifier of aquatic life uses is too narrow and has deleted that term from §307.4(i). However, because habitat can be mitigated, the commission is not including the phrase “existing, designated, and attainable” as modifiers to the aquatic life use in this section.

A number of commenters expressed concern that the proposal was limited to only Section 404 permits. Many comments supported the proposal to recognize that aquatic habitat is a necessary component for supporting aquatic life.

The proposed habitat language is not limited to dredge and fill activities. The statement in the preamble regarding questions about the role of habitat in dredge and fill activities was intended to

identify the origin of the need for the proposed clarification. This background information was not a statement of the limit of the existing policy. The statement in the proposed and adopted rule regarding the procedures for dredge and fill activities is to make it clear that the state's role in 401 certifications is administered under a separate rule (30 TAC Chapter 279). The commission agrees that habitat is a necessary component for supporting aquatic life and adopts the amendment as modified.

The cities of Arlington, College Station, Corpus, Dennison, Henderson, Jacksonville, Missouri City, Odessa, Plainview, Schertz, Sherman, Sulphur Springs, and Temple, GHP, Lloyd-Gosselink, SAWS, TCC, TML/TAMSA, TWCA, Utilities, and WF opposed the adoption of the proposed habitat criteria in §307.4(i). Most of these commenters were concerned that the proposed language would limit the flexibility of dischargers regarding regionalization of treatment facilities, reuse of effluent, water conservation, and storm water management. The commenters stated that the proposed language would require regulation of both increases and decreases in discharge flows.

The commission agrees that the language should not add a new provision to require wastewater discharges permitted under Chapter 26 to continue. The commission issues Chapter 26 authorizations only to set the terms and conditions under which a discharger can discharge. The rules do not and, as amended today, will not, require an existing discharger to continue an historical volume of discharge as a condition for renewing or amending a permit issued under TWC, Chapter 26. Therefore, the commission disagrees with the concerns of these commenters that the proposal will result in the consequence that a discharger permitted under Chapter 26 will be required to continue its prior discharge for the maintenance of artificially created habitat. The commission emphasizes

that there are independent obligations on some discharges that require continued habitat maintenance, such as mitigation commitments, other contractual agreements, and the requirements of their authorizations under TWC, Chapter 11, which require protection of environmental in-stream uses of water in the context of a permit or an amendment to a permit to use state water.

Many of the commenters expressed that the TNRCC failed to comply with the procedural requirements imposed by Texas Government Code, §2001.0225, in proposing §307.4(i), and that a full regulatory implementation analysis must be prepared.

The commission disagrees with the commenters' assertion that the commission is required to prepare a full regulatory impact analysis (RIA). First, the addition of §307.4(i) does not create a new use to the water quality standards. The section merely further articulates what has consistently been the antidegradation policy of previous rules. The antidegradation policy in Chapter 307 has always stipulated that water quality will be maintained so that aquatic life and other existing "uses" will be protected (see 30 TAC §307.5(b)(1)). Major disturbances of aquatic habitat affect both water chemistry (the most direct component of water quality) and the capacity of an aquatic ecosystem to sustain aquatic life. Thus, maintaining aquatic habitat is an important component of protecting and maintaining aquatic life, which is required by the antidegradation policy (see 30 TAC §307.5 and 40 CFR §131.12). Because this provision is not a new requirement, the commission is not required to prepare a full RIA.

Second, the Texas Government Code, §2001.0225, does not require the commission to prepare a RIA because §307.4(i) does not exceed a standard set by federal law, state law, or any requirements of the

TPDES delegation agreement between the TNRCC and EPA, and it is not adopted solely under the commission's general powers.

The proposed rule does not exceed standards set by federal law. Federal law requires states to establish water quality standards “. . .to protect the public health or welfare, [and] enhance the quality of water” CWA, §303(c), 33 USC, §1313(c). The standards are to account for the water's use and value for public water supplies, propagation and protection of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes (*id.* See 40 CFR §131.10). As stated above, aquatic habitat is necessary and important for aquatic life propagation and protection. To protect and maintain these uses, like aquatic life use and habitat, the states are required to develop and adopt statewide antidegradation policies and to include the policy in their water quality standards (see 40 CFR §131.6(d)). A state's antidegradation policy must, at a minimum, protect existing instream water uses (see 40 CFR §131.12(a)(1)). Because, federal law requires states to protect and maintain instream water uses, including the aquatic life and habitat use, §307.4(i) does not exceed a standard set by federal law.

Similarly, §307.4(i) of the rules does not exceed a requirement set by state law. Section 26.003 states that the purpose of Chapter 26 is “. . .to maintain the quality of water in the state consistent with . . . the propagation and protection of terrestrial and aquatic life” The water quality standards developed under TWC, §26.023, are the mechanisms by which the commission maintains the quality of water for the propagation and protection of terrestrial and aquatic life. Aquatic habitat is necessary and important for aquatic life propagation and protection. Therefore, the commission is required to protect and maintain aquatic life use and habitat of a water body and accomplishes this

goal through its antidegradation policy. Because state law provides for the protection and maintenance of aquatic life use and habitat, these rules do not exceed a standard set by state law.

The proposed rule does not exceed the requirements of the TPDES delegation agreement between the TNRCC and EPA. Under the agreement, the commission is required to operate the TPDES program in accordance with the CWA and applicable federal requirements (see Memorandum of Agreement (MOA) between the Texas Natural Resource Conservation Commission and the U.S. Environmental Protection Agency concerning the National Pollutant Discharge Elimination System, page 2). As part of that agreement, the TNRCC will include water quality based effluent limitations in TPDES permit to ensure compliance with EPA approved water quality standards (MOA, page 24). Thus, because the water quality standards are consistent with the CWA, they do not exceed a requirement of the TPDES MOA.

Finally, the proposed rule is not adopted solely under the commissions general powers. Rather, this rule is adopted under TWC, §26.023, which specifically requires the commission, by rule, to set water quality standards for the water in the state.

Because the rule did not meet any of the four applicability standards in Texas Government Code, §2001.0225(a), the TNRCC is not required to prepare a full RIA.

Several commenters claimed the addition of this section is not within the jurisdiction of the TNRCC, including comments that the vegetative and physical components are not water quality parameters.

The commission disagrees with the commenters. The commission has authority and the statutory mandate to protect the aquatic life and habitat use of a water body.

Section 26.003 states that the purpose of Chapter 26 is “. . .to maintain the quality of water in the state consistent with . . . the propagation and protection of terrestrial and aquatic life” The water quality standards developed under TWC, §26.023, are the mechanisms by which the commission maintains the quality of water for the propagation and protection of terrestrial and aquatic life. Major disturbances of aquatic habitat affect both water chemistry (the most direct component of water quality) as well as the capacity of an aquatic ecosystem to sustain aquatic life. Thus, maintaining aquatic habitat is an important component for the propagation and protection of aquatic life and is required by state law.

Further, federal law requires that states establish water quality standards “to protect the public health or welfare, [and] enhance the quality of water” CWA, §303(c), 33 USC, §1313(c). The standards are to account for the water’s use and value for public water supplies, propagation and protection of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes (*id.* See 40 CFR §131.10). Aquatic habitat is necessary and important for aquatic life propagation and protection. To protect and maintain these uses, like aquatic life use and habitat, the states are required to develop and adopt statewide antidegradation policies and to include the policy in their water quality standards (see 40 CFR §131.6(d)). The water quality standards developed by the commission are intended to implement these federal requirements, which are an important component of the TPDES permitting process (see TWC, §5.102 and §26.027(a)). Thus, protecting aquatic life use and habitat is within the jurisdiction of the commission.

Several commenters opposed the proposal because they believed it violates the legislative intent of Rider 27 of the House Bill 1, General Appropriations Act of 1999.

The water quality standards do not violate the legislative intent of Rider 27. Rider 27 prohibits the expenditure of funds to conduct CWA, §401 certifications in the 2000/2001 biennium except when necessary for a federally delegated program or to comply with a requirement of federal law. Rider 27 is limited to 401 certifications and does not apply to the adoption of the water quality standards. The water quality standards are used to set effluent limits in TPDES permits among other things and are not limited to 401 certifications of dredge and fill projects.

Several commenters stated the language was unclear and that if the intent was to only address dredge and fill activities, it should be clearly stated that way.

The proposed habitat language is not limited to dredge and fill activities. The statement in the preamble regarding questions about the role of habitat in dredge and fill activities was intended to identify the origin of the need for the proposed clarification. This background information was not a statement of the limit of the existing policy. The statement in the proposed rule regarding the procedures for dredge and fill activities is to make it clear that the state's role in 401 certifications is administered under a separate rule (30 TAC Chapter 279).

Several commenters requested criteria for the implementation of the habitat provisions. Several commenters opposing the proposal stated it was unnecessary because habitat characteristics are already a factor in determining the aquatic life use of a water body.

The proposed implementation procedures for this chapter provide information on the current practice of habitat assessment for aquatic life use determination. The commission is not proposing any additional habitat criteria in this revision, but will consider additional criteria as appropriate in the future. The commission agrees with the comments that habitat is already a factor in determining the aquatic life use of a water body. As identified in the preamble to this proposed rule, there has been considerable discussion about the existing role of habitat in water quality standards, specifically for dredge and fill activities. This amendment is intended to clarify the commission's existing policy.

One commenter stated that the proposed language could be interpreted as imposing "Tier 3 like" provisions to physical and vegetative components.

The commission responds that general narrative to protect habitat does not invoke the prescriptive protection of water quality in Tier 2 and Tier 3 of the antidegradation policy in §307.5. The narrative on habitat protects uses for aquatic life, and use-protection is the fundamental level of protection afforded throughout the general criteria.

Several commenters expressed concern about the proposed general criteria for aquatic recreation in §307.4(j). Austin requested clarification on how to distinguish "lakes, reservoirs, and saltwater bays" from other similar categories of water bodies, since high-use contact recreation is presumed for lakes, reservoirs,

and saltwater bays. NWF expressed opposition to applying different levels of recreational use to different categories of water bodies. NWF also noted that applying these presumptions to water bodies “not specifically listed in Appendix A” is not accurate, and that any presumptions should apply to “all water bodies for which a use category is not specifically listed in Appendix A.” TCONR, TPWD, and TCPS also expressed concerns about presuming different levels of recreational use for different types of water bodies. Conversely, TSSWCB recommended that “general contact recreation” be assumed for lakes, reservoirs, and saltwater bays. These commenters provided additional comments which are reviewed in the discussion concerning §307.7(b)(1), where the details of recreational criteria are presented in the water quality standards.

In response to concerns about the proposed recreational categories, the commission has deleted the different categories of contact recreation from the general criteria, and a single category of “contact recreation” is adopted as a presumed use for all water bodies except where specifically listed for a different recreational use in Appendix A. A more detailed presentation of comments and the commission’s responses on recreational uses and indicators is provided in the discussion concerning §307.7(b)(1).

NWF commented that in §307.4(h)(4)(l) that the “commission,” in addition to the “executive director,” should be noted as potentially taking regulatory action that could affect a particular water body.

The commission concurs and both terms are included.

SECTION 307.5

Solutia and TCC expressed support for the revisions to §307.5. SC-Houston expressed disagreement with the provision allowing Tier 2 degradation of water quality for important economic or social development.

The existing language in §307.5(a)(2) is consistent with federal requirements for the antidegradation policy in 40 CFR §131.12. The commission notes that §307.5(c)(2)(F) allows interested parties to provide comments and additional information regarding the necessity of the discharge for important economic or social development if degradation of water quality is expected under Tier 2. The commission has made no changes to §307.5(a)(2) and retains the existing language of the rule.

TSSWCB recommended that TMDL terminology be removed from §307.5 on the grounds that inclusion of TMDLs would lead to confusion regarding the purpose of a TMDL and may hinder the stakeholder process if the antidegradation policy supplants the load allocation power from the stakeholders group. If the term must remain, TSSWCB concurs with including the language in §307.5(c)(2)(G).

The commission responds that inclusion of TMDLs in the antidegradation section is appropriate and has retained TMDLs in this section since they are subject to the antidegradation provisions. TMDLs are included in the antidegradation policy to clarify that the TMDL must be consistent with the antidegradation policy. The commission also notes that the antidegradation policy applies only to authorized increases in loading. Many TMDLs will require a reduction in existing loading. Permits issued consistent with an approved TMDL would not require additional, individual review for potential degradation concerning the permit loadings of the constituents in the TMDL. Nothing in the antidegradation policy will limit the stakeholder process for TMDL development. This approach

to TMDLs is consistent with the commission's practice of approval of traditional waste load evaluations.

GBF and NWF requested that "existing uses," in addition to "water quality sufficient to protect existing uses," be included in §307.5(b)(1) to achieve consistency with federal requirements.

The commission agrees with these comments and has modified the language to make the policy consistent with §307.(c)(2)(A). This modified language is also consistent with the federal antidegradation policy requirements of 40 CFR §131.12(a)(1).

A request to define *de minimus* in §307.5(b)(2) was submitted by EPA. Austin commented that the rule should specify criteria for what statistically constitutes a greater than *de minimus* effect.

The commission agrees that additional guidance is needed for the implementation of this term and has attempted to provide more detail on the range of parameters considered for degradation in the standards implementation procedures. This approach is more feasible than a statistical definition, given the natural variability of water bodies in the state.

Austin expressed concern that no designations for outstanding national resource waters (ONRW) were proposed for addition to the standards in §307.5(b)(3) and suggested that Barton Creek (Segment 1430) would fit the description of an ONRW.

The commission responds that valid public and legislative concern was expressed over previous draft proposals for designating outstanding national resource waters. EPA has indicated in guidance for ONRWs (e.g., in the second edition of the EPA Water Quality Standards Handbook), that the prohibition of any increased pollutant loadings to ONRWs is to be stringently applied. However, there is still substantial uncertainty about how federal requirements for ONRW protection would be implemented on a case-by-case basis, and no designations were considered for this revision of the standards.

GBF and NWF commented that the term “pollution” rather than “pollutant” should be used in the general description of the antidegradation policy in §307.5(b)(4), and (c)(1) and (2). The use of the term “pollutant” limits the state’s ability to protect waters through the antidegradation policy.

The commission agrees that the term “pollution” is consistent with TWC, §26.023. The definition of pollution in the TWC, §26.001, has also been included in §307.3 for clarity. Additional discussion on this issue is provided in the commission’s response to comments on §307.3. This change of terms has been made throughout §307.5.

GHP commented that the rule needs to clarify in §307.5(c)(1)(B) that 401 reviews are limited to those aspects of United States Army Corps of Engineers actions that affect water quality.

The commission responds that 401 Certifications are an opportunity for the state to review a proposed federal discharge permit for consistency with the state water quality standards. The evaluation of uses is not limited to protection of water chemistry. The purpose of §307.5(c)(1)(B) is to show that

for state certification of federal permits to allow the discharge of fill material under Section 404 of the federal CWA, the antidegradation policy is implemented according to Chapter 279. The uses and criteria of the water quality standards remain applicable to 401 Certifications of 404 permits.

NWF suggested that the requirement for standards to be attained in §307.5(b)(4) should not be limited only to discharges authorized by the TWC and the federal CWA. The scope of activities subject to the water quality standards is controlled through statutes and external rules. The language in the water quality standards rules should use more expansive language to avoid unnecessary, and potentially unanticipated, limitations on their scope.

The commission agrees with this suggestion and has clarified that discharges which cause pollution that are “authorized by other applicable law” are also subject to §307.5(b)(4).

With respect to §307.5(e)(2)(E), EPA indicated that evidence regarding the implementation of the antidegradation policy could be introduced through the public comment process.

The commission responds that explicit allowance of public comment on specific regulatory actions under the antidegradation policy is appropriate and intended, and language to this effect is added to §307.5(e)(2)(E).

SECTION 307.6

A variety of comments were received concerning proposed revisions to water quality standards for toxic pollutants in §307.6.

One individual indicated that the fiscal note did not reflect the impact that changes in Tables 1 and 3 would have on pretreatment programs and suggested that the changes not be adopted until the impacts were recognized, understood, and evaluated.

The commission responds that the potential impacts of the proposed revisions on dischargers to municipal sewerage systems, which might be affected by pretreatment programs, were analyzed in the section of the preamble to the proposed rule entitled Small Business and Micro-business Analysis.

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.

SC-Houston expressed concern that there were too few herbicides on the toxic materials list (in Tables 1 and 3 in §307.6).

The commission acknowledges that criteria are not listed for some herbicides, but the development of these criteria is dependent on the availability of sufficient technically valid data on the toxicity of specific herbicides. Such data and EPA guidance criteria are not always available, particularly for newer herbicides. The provisions in §307.6(c)(7) and (d)(8) for developing criteria that are not in Tables 1 and 3 can be applied when criteria are needed for specific cases when sufficient information is available. EPA guidance criteria have also not been established.

EPA questioned why criteria values were rounded and recommended that the commission retain the unrounded criteria. EPA stated that the rounding makes it more difficult for readers to determine which criteria are based on EPA recommended values and which criteria have been recalculated.

The commission reevaluated the rounding and is retaining three significant digits for criteria where appropriate.

NCE indicated that TNRCC needed to better explain the basis and reasons for the proposed changes which were made to Tables 1, 2, and 3 of §307.6 and also Table 5 in §307.7, so that the public could comment on the changes.

The commission notes that specific calculations of toxic criteria in Tables 1 and 3 were too detailed to include in the preamble of the proposed rule, although these calculations are available. The procedures for these calculations are already described in the text of §307.6. With respect to justification and evaluation, the commission responds that the preamble for the proposed changes did contain substantial discussion and evaluation. Effects of the changes were evaluated to the extent that available information would reasonably allow in the fiscal note.

NCE, USIBWC, and NWF indicated that the proposed reference to “five” kinds of toxic exposure routes in §307.6(b)(4) was incorrect.

The commission agrees and the reference to number in the adopted language has been changed to “three.”

NWF questioned whether the general narrative provisions in §307.6(b)(4) were sufficiently inclusive of various categories of wildlife which could be exposed to toxic pollutants in water. The question was raised since the commission had proposed to add the term “birds” along with the existing term “terrestrial wildlife.”

The commission clarifies the narrative protection by removing the proposed term “birds” from the adopted language in §307.6(b)(4). The term “terrestrial wildlife” remains, and the commission intends that this term includes birds and other forms of wildlife which can fly.

TCC noted a typographical error in Table 1, in which the exponential portion of the metals criteria was printed with a “1” instead of an “e.”

The commission responds that this error has been corrected in the adopted version of the rule.

D-Koch proposed using the biotic ligand model, rather than pH and hardness, to determine the bioavailability and toxicity of metals instead of pH and hardness in §307.6(c)(1).

The commission notes that the biotic ligand model or similar approaches might eventually improve estimates of changes in the toxicity and bioavailability of metals with respect to water chemistry. However, current EPA guidance criteria and toxicity databases are still largely based on hardness and other variables. This comment can be considered for development of future revisions of the water quality standards.

With respect to the water-effects ratio proposed for the copper criteria in Table 1 in §307.6(c)(1), and with respect to the site-specific criteria for copper in Appendix E of §307.10, one individual expressed opposition to increases in copper criteria anywhere in the state.

The commission responds that site-specific criteria for copper and other metals are appropriate when sufficient data is available to incorporate local effects of water chemistry. These adjustments of the statewide criteria as noted in Table 1 and the proposed additions to Appendix E are supported by EPA guidance.

EPA supported the proposed changes in §307.6(c)(1) (Table 1) to the criteria for metals, in order to compensate for expressing these criteria as the dissolved portion. EPA noted corrections needed for CAS numbers for chromium (tri and hex) and for endosulfan I and II.

The commission responds that the CAS numbers have been corrected, and the numerical criteria for metals in Table 1 are adopted as proposed.

EPA commented with respect to §307.6(c)(4) that chemical specific criteria would be appropriate for ammonia and chlorine toxicity, since direct measurements of chemical concentration avoid chemical degradation during whole effluent toxicity testing, and since some streams may not be protected from minor discharges by whole effluent testing.

The commission responds that whole effluent testing, in conjunction with typical permitting requirements for dechlorination, remains a reasonable approach for assessing toxicity from chlorine

and ammonia. No change was proposed for this standards revision, and the appropriate controls for ammonia and chlorine toxicity may be subject to review during the next revision of the water quality standards.

Austin objected to a proposed change in §307.6(c)(6), which indicated that acute toxic criteria to protect aquatic life may be exceeded at extremely low streamflow conditions (one-fourth of critical low-flow conditions). Similarly, NWF commented that acute criteria should apply during all flow conditions. EPA interpreted the change as a clarification which would not affect permitting, and more information would be needed if this is not the case. EPA also recommended adding language to state that any exceedances of acute criteria in the zone of initial dilution will not affect compliance with permit limits.

The commission responds that the implementation of a critical low-flow for acute criteria is needed in order to establish an instream design flow for calculating effluent limits for wastewater discharge permits. In addition, this proposed change is compatible with the existing water quality standards, which already state in §307.8(b)(2)(A) that “. . .ZIDs (zones of initial dilution) in streams and rivers shall not encompass more than 25 percent of the volume of stream flow at or above seven-day, two-year low-flow stream conditions.” The proposed change will create internal consistency within the standards. It is not intended to change current permitting procedures, nor to change measures of compliance with existing permits. The commission notes that this change, and the commensurate change in §307.8(a)(2), is in accordance with the EPA’s guidance document, *Technical Support Document for Water Quality-based Toxics Control* (1991). This guidance indicates that water quality standards should protect water quality for designated uses in critical low-flow situations, and the guidance document also recommends the kinds of extremely low stream flow conditions below which

numerical toxic criteria do not apply. The commission agrees that in establishing water quality standards, states may designate a critical low-flow below which numerical criteria do not apply. The commission does note, however, that exceedances of acute criteria may occur only “below” rather than “at” one-fourth of critical low-flow conditions. With this editorial correction, the change is adopted as proposed.

Eastman, GHP, and TCC suggested moving Table 2 in §307.6(c)(8), which contains average hardness and pH values for major river basins, to the Implementation Procedures.

The commission acknowledges that the values in Table 2 are default values that are generally used as screening tools. However, there is utility in having these regulatory default values in the rules, in order to provide a uniform reference value, in the absence of better information, for the magnitude of toxic criteria that vary with hardness or pH.

GCA, EHCMA, TCC, Kodak, Utilities, and GHP supported the proposed inclusion of a variable for water-effects ratios in the criteria for metals in Table 1, as described in §307.6(c)(9). TPWD indicated that adequate public notice is needed when a site-specific water-effects ratio is used, and NWF commented that §307.6(c)(9) should ensure that opportunity is provided for public comment and hearing.

The commission responds that the water-effects ratio will be included in criteria for metals in Table 1 as proposed. In §307.6(c)(9), a sentence was added to indicate that public notice will be provided during the permit application process which will note water-effects ratios which affect the effluent limit of the permit and which have not yet been incorporated into Appendix E of §307.10.

UTHSC requested that TNRCC clarify whether the test toxicant for a water-effects ratio in §307.6(c)(9) is added to stream water or if only stream water is used for a comparison bioassay.

The commission responds that water-effects ratio analyses are conducted using EPA guidelines, and these procedures are documented in EPA's *Interim Guidance on Determination and Use of Water-Effect Ratios for Metals*. Current procedures do specify that the toxicant of concern is added in various concentrations to instream water for conducting the comparison bioassays.

NCE suggested that more explanation of the proposed addition of perchlorate and a related footnote to Table 3 in §307.6(d)(1) is needed for public comment. PSG, USAF, CEOH, and Kerr-McGee commented that it was premature to adopt a criterion for perchlorate in Table 3 to protect drinking water sources, because a federal review is currently being conducted to develop federal guidance criteria, and because the appropriate reference dose for perchlorate remains under debate in the federal review process. EPA supported the addition of criteria for perchlorate.

The commission responds that procedures which were used to calculate the proposed criterion for perchlorate were in accordance with procedures which were used by the commission to develop a recommended general criterion for drinking water sources. The commission acknowledges that federal guidance has still not been completed, and that some changes may eventually occur in the applicable reference dose for perchlorate. Therefore, the proposed criterion for perchlorate is not adopted in Table 3 of the rule at this time. However, the commission emphasizes the relevance of §307.6(d)(8), which establishes provisions for applying criteria to regulatory actions of the agency

when toxic substances are not in Table 3. For such regulatory actions, the commission will continue to use the agency guideline criterion of 22 micrograms per liter of perchlorate until and unless better information indicates that a different criterion is appropriate. In response to questions about the assumptions that were used for the proposed perchlorate criteria, the commission revised proposed language in §307.6(d)(8)(A) and (B) to note that site-specific guideline criteria for protecting surface sources of drinking water may default to the agency's calculations and guidelines for general protection of drinking water sources – in addition to an adopted MCL for drinking water.

With respect to Table 3 in §307.6(d)(1), Agriculture, Novartis, TCPB, TFB, and TSSWCB suggested that the TNRCC postpone adopting criteria for atrazine until EPA completes their review using the newest risk assessment and data, because preliminary data indicates that the current federal MCL for atrazine to protect drinking water will be raised. EPA supported the addition of criteria for atrazine.

The commission acknowledges that federal guidance has still not been completed, and that some changes may eventually occur in the federal drinking water MCL, which was the basis for the proposed criterion. Therefore the proposed criterion for atrazine is not adopted in Table 3 of the rule at this time. As with perchlorate, however, the commission emphasizes the relevance of §307.6(d)(8), which establishes provisions for applying criteria to regulatory actions of the agency when toxic substances are not in Table 3. For such regulatory actions, the commission will continue to use the existing MCL of three micrograms per liter as the criterion for surface water sources of drinking water until and unless better information indicates that a different criterion is appropriate.

DOW, Utilities, and TCC suggested that the proposed human health criteria for 1,3-dichloropropene and acrylonitrile in Table 3 of §307.6(d)(1) are unnecessary and unjustified. Commenters know of no water quality problem with the use of these chemicals in Texas and stated that they are not discharged in sufficient amounts in Texas or found in ambient waters to justify including them in the standards. Similarly, Solutia was opposed to including acrylonitrile, and TSSWCB was opposed to including 1,3-dichloropropene. Conversely, EPA supported the addition of 1,3-dichloropropene and acrylonitrile.

The commission agrees that numerical criteria are not needed for substances which do not occur in pollutant sources or in surface waters. However, the agency's review indicated that permittees are already required to test for 1,3-dichloropropene and acrylonitrile in applications for wastewater discharge permits. Therefore, the proposed criteria will not impose an additional requirement for effluent screening by permit applicants. In addition, both of these toxicants are already included in monitoring of surface waters that is conducted by TNRCC. Detections of these substances are indeed very infrequent, as is the case with most volatile compounds, but a water quality standard for them is still appropriate to ensure that localized impacts are precluded, and the criteria for 1,3-dichloropropene and acrylonitrile are adopted as proposed.

EPA suggested that in Table 3 in §307.6(d)(1) the toxic equivalency factors for 1,2,3,4,8-PeCDD should be adjusted from 0.5 to 1.0, OCDD and OCDF should be included in the list of dioxin/furan congeners.

The commission responds that the proposed dioxin/furan criteria, which already contain toxicity equivalency factors for seven congeners, are reasonably protective. The proposed changes in the criteria, which are expressed as the summed TCDD equivalents, are substantially more stringent than

in the previous standards. The suggested adjustments in equivalency factors were not proposed, but they can be evaluated at the next standards revisions. The proposed changes for the criteria for dioxins/furans in Table 3 are adopted as proposed.

Several changes are adopted in Table 3 in §307.6(d)(1) which were not specifically proposed, but which are needed for editorial clarity or to resolve a contradiction in the existing rule. The criterion for chloroform for drinking water sources (Column A in Table 3) was proposed to be 181 micrograms per liter. However, the existing criterion for the sum of total trihalomethanes, which includes chloroform, is 100 micrograms per liter. In order to maintain internal consistency in Table 3, the proposed criterion of 181 micrograms per liter for chloroform is changed to 100 micrograms per liter in the adopted rule. The criterion for pentachlorophenol for drinking water sources (Column A in Table 3) was proposed to be changed from 129 to 19.1 micrograms per liter. However, the current drinking water MCL is 1.0 micrograms per liter. Section 307.6(d)(3)(G) in the water quality standards indicates that the drinking water MCL supercedes if the calculated criterion is greater than the drinking water MCL; therefore, the MCL value of 1.0 micrograms per liter is adopted for pentachlorophenol in Column A of Table 3. The name “nitrate-nitrogen” in Table 3 is changed to “nitrate-nitrogen as total nitrogen” to clarify that the way in which the nitrate for this criterion is expressed. The commission also notes that a lower MCL for arsenic is under consideration by EPA; and if adopted in federal and state drinking water regulations, the MCL value may be appropriate as a surface water criterion for specific regulatory actions that affect drinking water sources.

TPWD pointed out an editorial error in §307.6(d)(5), with respect to the phrase “...water in the state which have....”

This phrase was changed to “...water in the state which has ...” in the adopted rule.

TCC, Solutia, and GHP expressed concern that the proposed procedures in §307.6(d)(8) for developing criteria for substances not listed in Table 3 are too broad. Comments indicated that data quality objectives for “available information” should be specified, and at a minimum, the data used for human health criteria must be peer-reviewed scientific studies published in reputable scientific journals with general circulation.

The commission acknowledges that care is needed in selecting appropriate data for developing toxic criteria, but the specific restrictions that were recommended may be too restrictive to allow potentially useful sources such as manufacturer’s tests on a new pesticide. The importance of considering data adequacy is noted in general by changing “available information” to “technically valid available information” in the adopted rule.

With respect to §307.6(e)(2)(C), EPA supported the proposed addition which notes that approval by the executive director and by EPA is needed for the use of alternate procedures for conducting biomonitoring (whole effluent testing).

This change is adopted as proposed.

EPA indicated that in §307.6(e) the terms “lethality” and “toxicity” are sometimes used interchangeably and assumes that the proposed language is to clarify the existing provision in the current standards. EPA assumed that lethality is still prohibited at all flows including those below one-fourth of the critical low flow.

The terms are not used interchangeably. Lethality is used in reference to passage through a ZID and at flows below one-fourth of the critical low flow. EPA's assumption is correct in that lethality is still prohibited at all flows.

SECTION 307.7

307.7(b)(1)

Numerous comments were received on proposed changes in the criteria for recreation in §307.7(b)(1). A variety of commenters, including EPA, Eastman, SAWS, Solutia, TCC, UTHSC, and GHP supported the change to *E. coli* and Enterococci as bacterial indicators for recreation. However, many commenters, including FUSE, GBF, LPCASS, NWF, TCEA, TCONR, SC-Houston, SCLS, USIBWC, and 110 individuals expressed concern that the transition to different indicators will result in difficulties in assessing standards attainment, and these commenters generally recommended that dual sampling be conducted of current and proposed bacterial indicators before incorporating the proposed indicators in the water quality standards. NWF also expressed concern that the change in indicators would cause a loss in the ability to track long-term trends, and TPWD suggested that dual sampling of old and new indicators should be conducted in order to allow development of trend analyses.

The commission acknowledges that the change will have some adverse effect in the continuity of the data on indicator bacteria. However, epidemiology studies indicate that the new indicators provide an improved estimation of the relative risk of swimmer illness. The new indicators are in accordance with current federal guidance, and an independent evaluation by a commission workgroup has recommended switching to the alternative indicator bacteria. In addition, the utility of trend analyses with fecal coliform is already limited by interference with non-fecal sources of bacteria, high sampling

variability, and changes in sampling procedures and analytical methods over the years. *E. coli* and Enterococci are therefore adopted as bacterial indicators for recreation. The commission recognizes that some difficulties will be inherent during the transition period. Sampling of both indicators will be conducted for a two- to three-year period where monitoring resources allow, but dual sampling for both indicators at an extensive number of sites is not feasible – whether the new criteria are adopted now or whether they are postponed until the next triennial revision of the standards. The commission intends to continue to assess support of recreational uses for approximately the same water bodies. The proposed changes include the use of fecal coliform as a bacterial indicator until such time as sufficient data is obtained for minimum requirements of assessment with the new indicators. Currently, minimum requirements are nine samples, and one to five years of data are used for the assessment. At sites where monitoring is conducted only for the new indicators, the historically available data for fecal coliform will continue to be used for assessing long-term standards attainment until an adequate data set is obtained for the new applicable indicator. The gap in assessment for sites where this approach is needed will generally be about two years. To facilitate the transition, the commission adopts the proposed language which specifically allows the continued use of fecal coliform as an indicator until sufficient data is available for the new indicators. The commission also adopts the proposed language which allows the long-term continued use of fecal coliform for some purposes, such as in oyster waters.

The proposed criteria were expressed as a geometric mean, but the preamble for proposal also requested specific comments on whether to apply any recreational criteria to shorter time frames, such as the single-sample criteria in current federal guidance. EPA, F&A, NWF, TCONR, and nine individuals requested that a criterion for a single sample be included if the new recreational criteria are adopted.

The commission notes that adding a single-sample criterion has the disadvantage of complicating the evaluation of standards attainment for recreational use. However, a single-sample criterion does provide a better indication of potential short-term problems than the geometric mean, and there is substantial public support for a short-term indicator. Therefore, the commission adopts single-sample criteria for recreational indicators. The single-sample criterion for contact recreation in freshwater is an *E. coli* concentration of 394 per 100 milliliters, which is based on an upper confidence level of 82% and a log standard deviation of 0.52. The upper confidence level of 82% is taken from the current federal guidance for applying *E. coli* criteria to moderate full body contact recreation, and the log standard deviation is the average of the log standard deviations which were calculated individually for 126 sampling stations in Texas waters. The single-sample criterion for contact recreation in saltwater is an Enterococci concentration of 89 per 100 milliliters, which is based on an upper confidence level of 82% and a log standard deviation of 0.7. The upper confidence level of 82% is taken from current federal guidance for applying Enterococci to moderate full body contact recreation, and the log standard deviation is the default value in the current federal guidance. The single-sample indicator for fecal coliform for contact recreation is set at 400 per 100 milliliters, as it was in the previous standards. Standard deviations and other information used to establish these general-purpose single-sample indicators are subject to re-evaluation upon the next triennial revision of the standards. Both the criteria for geometric mean and the criteria for single samples are applicable to evaluations of standards attainment. Appropriate sample size and the frequency of exceedance of single-sample criteria which constitutes an impairment of a recreational use are addressed in *TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data*. The commission also adopts the proposed narrative concerning areas where local jurisdictions provide public notice or closure based on water quality at designated swimming areas.

However, the adopted narrative does not specify a single-sample criterion for the purpose of providing notice or closure at designated swimming areas. Instead, the adopted narrative allows substantial local flexibility and alternative measures, such as turbidity or local rainfall that can be related to bacteria levels. Examples of applicable criteria for designated bathing beaches and similar designated swimming areas are noted in documents such as EPA's *Ambient Water Quality Criteria for Bacteria - 1986*, which recommends a single-sample criterion for *E. coli* in freshwater of 235 per 100 milliliters, and a single-sample criterion for Enterococci in saltwater of 61 per 100 milliliters.

In addition to the change in indicator bacteria for contact recreation, the commission received substantial comments on the proposed change in the way that data is used to assess standards attainment for recreation. For water bodies designated for general recreation, attainment would be assessed by including only those samples which were collected when contact recreation was considered to be suitable in terms of flow, depth, and weather. For water bodies designated for high-use contact recreation, samples collected at all conditions would be included in assessing attainment. General contact recreation would apply to rivers and streams, and high-use contact recreation would apply to lakes, reservoirs, saltwater bays, and the Gulf of Mexico. UTHSC specifically expressed support for this change, but numerous commenters, including Austin, FUSE, LPCASS, NWF, SC-Houston, TCONR, TPWD, and 227 individuals objected to or expressed concerns about the way that attainment would be assessed for general recreation. Concerns were expressed that the methodology for determining when recreation was considered suitable was not established, and that general recreation would be inappropriately applied to some rivers which were extensively used for contact recreation under a variety of conditions. EPA commented that procedures for designating additional water bodies for high-use contact recreation should be developed. LCRA and SC-Houston requested that specific riverine areas be designated for high-use contact recreation. TCONR

recommended a designation of high-use contact recreation for riverine areas in or adjacent to state parks, local parks, and other locations known to be used frequently for contact recreation.

In response to these numerous comments and concerns, the commission deleted the proposal to assess contact recreation only when conditions are suitable. Similarly, the proposal to divide contact recreation into general and high-use categories was deleted from §307.7(b)(1) and from the presumed application of these categories to unclassified water bodies in §307.4(j); and the proposed definitions of these two categories were deleted from §307.3. However, the commission affirms the merit of assessing recreational criteria only when conditions are suitable for recreation. The EPA guidance criteria were developed entirely from data at swimming beaches in good weather and with suitable swimming conditions; therefore, the criteria were not designed to effectively address streams during the very high or low flows that are included in routine monitoring. Inaccurate assessments of recreational impairment can occur without a procedure to consider flow variability, physical conditions, and the high bacteria concentrations common even in relatively unpolluted rainfall runoff. Procedures to implement this approach will continue to be developed, so that it can be fully considered in the next revision of the water quality standards. To the extent possible, the agency will obtain additional information during sampling of bacterial indicators in the interim period, so that recreational suitability can be estimated from available data when and if this approach is adopted.

Numerous commenters expressed concern that the proposed changes in recreational criteria might inappropriately remove water bodies from the state list of impaired waters which is established under Section 303(d) of the federal CWA. F&A, NWF, and 287 individuals requested that the commission provide an evaluation of how the proposed changes to recreational criteria would affect the state list of

impaired waters. TCONR requested that the commission provide written assurance that water bodies would not be removed from the list without adequate supporting data to indicate that the new criteria are met, and TCONR also requested that the criteria for fecal coliform continue to be used to add new water bodies to the list until sufficient data for the new indicators is available. Two hundred eighty-seven individuals requested that the water bodies not be removed from the state list of impaired waters until they are cleaned up.

The commission responds that water bodies which are listed as impaired for recreational use will not be removed from the list solely because of the change in bacterial indicators. As indicated in previous responses, the assessment of recreational attainment will continue to use fecal coliform as the criterion for recreation until sufficient data is available to apply the newly adopted indicators. However, the commission anticipates a water body will be delisted if and when adequate data using the new indicator demonstrates the standard is met under the new indicator.

TCONR requested that additional specificity be added to the water quality standards, rather than in a guidance document, concerning the minimum number of samples and other data requirements for assessing attainment of recreational uses. TCONR also suggested that the geometric mean criterion be evaluated with five or more samples collected over a 30-day period. TML/TAMSA suggested that the annual geometric mean of *E. coli* be based on a minimum of nine samples taken during conditions that are representative of flow and seasonal variations.

The commission responds that the adopted standards establish a reasonable framework for the criteria, and further details on recommended procedures for assessing standards attainment are

provided in *TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data*. Additional discussion concerning the appropriate role of this guidance document in assessing standards attainment is provided in the responses to comments on §307.9.

Austin suggested that the provisions for assessing recreational indicator bacteria should not include the requirements that five samples be collected in 30 days.

The commission concurs and notes that the proposed and adopted procedures for assessing criteria do not include a requirement for five samples collected in 30 days.

EPA requested clarification concerning if and how permit limits for fecal coliform, *E. coli*, or Enterococci would be established for various averaging periods.

The commission responds that the recommended procedures for determining permit limits for indicator bacteria will be considered in revisions of the standards implementation procedures. The commission notes that recreational criteria are not presumed to be directly applicable to discharge effluent at “the end of pipe.” In addition, averaging periods and other permit conditions may be different than those specified for instream criteria. Consideration of permit conditions for recreational bacteria may also consider the same kinds of factors that are considered for assessing instream compliance, such as evaluating a frequency of exceedance for single-sample indicators. Limits for the geometric mean and individual grab samples may also reflect performance expectations for a particular type of discharge and expected instream conditions during discharge.

In §307.7(b)(1), SC-Houston requested that the term “reasonably controlled” be defined in the statement that “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.”

The commission responds that a specific definition of this term is not necessary. In practice, the designation of noncontact recreation has only been applied in very limited circumstances, and a use-attainability analysis and a site-specific revision in §307.10 would be required for this designation.

TCONR requested that the commission acknowledge that additional or different recreational indicators may be considered in future rulemaking as more information on pathogens in the water becomes available.

The commission acknowledges that the adopted recreational indicators are still imperfect, and future scientific evidence may eventually provide better indicators. The commission will consider incorporating improved indicators in future revisions of the water quality standards. Better indicators are unlikely to be readily available in the near future, however, and the adopted indicators are expected to be the best available for an extended period of time.

Solutia and TCC requested an additional sentence which stipulates that standards for contact recreation do not apply to navigation areas such as barge slips and turning basins, since these areas are not safe for recreation.

The commission responds that the following statement, which is now in §307.7(b)(1), adequately addresses noncontact recreation: "Classified segments are designated for contact recreation unless ... contact recreation is considered unsafe for other reasons such as ship or barge traffic." In accordance with EPA requirements in 40 CFR §131, designations of noncontact recreation for individual water bodies will require a use-attainability analysis and a site-specific revision in §307.10.

In conjunction with the above responses, the commission also updates the reference to recreational criteria in buffer zones of oyster waters in §307.7(b)(3)(B).

307.7(b)(3)

NWF opposed application of Table 5 to classified segments as proposed in §307.7(b)(3)(A) and expressed the following concerns. The proposal would expand calculating dissolved oxygen (DO) concentrations in streams to all waters in east Texas and would override segment criteria. The study of least impacted streams is not applicable to larger streams, such as those which are classified segments. In §307.7(b)(3)(A)(iv), TNRCC is allowing further, apparently unlimited, deviation from the provisions of the standards by allowing further modification of Table 5 factors which could be used to modify designated criteria. The commenter proposed that the commission delete proposed §307.7(b)(3)(A)(iv). NCE stated that an explanation for the changes in Table 5 is needed for public comment.

The commission disagrees and responds that the application of Table 5 flow values to classified and unclassified water bodies will be limited to streams and rivers that have 7Q2 flows that fall within the range of flows shown in Table 5 for an applicable aquatic life use. There are several segments in the eastern portion of the state that have 7Q2 flows within the flow range covered by Table 5. Twelve

percent of the ecoregion streams sampled in the eastern portion of Texas are classified segments. The application of the regression equation is therefore equally valid for classified streams as it is for unclassified streams since the data is from least impacted streams, regardless if the streams were classified or unclassified. The ability to adjust factors at a particular site is justified since the original regression equation uses data from multiple streams to predict average DO. Also Table 5 is actually a simplified version of the regression equation depicting expected average DO at a given bedslope and stream flow, with a third factor being held constant. When investigating a particular site, other factors such as local hydrology or temperature may become important factors in determining DO concentrations. These factors are consistent with those used in TNRCC water quality simulation models. The commission responds that the changes in Table 5 were summarized in the preamble to the proposed revisions, and the explanation of how Table 5 is employed is adequately explained in §307.7(b)(3)(A) and in the standards implementation procedures and adopts the revisions as proposed.

TPWD wondered if the language in the third to the last sentence in §307.7(b)(3)(A)(ii) should state "...at or above an assigned, designated or presumed aquatic life" use rather than "...at or below . . ."

The commission responds that the wording is correct as stated in the proposed revisions. The level of dissolved oxygen which is specified in Table 5 is applicable at the assigned, designated or presumed aquatic life use at the indicated stream flows; and the dissolved oxygen criteria applicable for lower aquatic life uses are applicable at the lower indicated stream flows.

307.7(b)(5)

Numerous comments were received on proposed §307.7(b)(5) concerning additional uses. ED, EPA, F&A, FUSE, GBEP, GBF, LPCASS, NWF, SCLS, TAMU-CC, TCEA, TCONR, TCPS, TGLO, TML/TAMSA, TPWD, TSA, UT-Tyler, and 410 individuals expressed general support of the proposed language to add seagrass propagation as an additional use and FUSE, GBF, NWF, TML/TAMSA, UT-Tyler, and 287 individuals expressed general agreement to add wetland water quality functions as an additional use. TAMU-CC, TCONR, TCPS urged the commission to adopt stronger language to protect seagrass by establishing water quality criteria for seagrass. POCCA and TSSWCB did not agree with the proposed seagrass language and DOW, TWCA, and Utilities did not agree with the proposed language for wetland water quality functions. TML/TAMSA suggested that seagrass propagation and wetland water quality functions be maintained where these uses occur naturally. EPA recommended that seagrass be established as a designated use similar to the oyster waters use under the subcategory of aquatic life use and also recommended that seagrass propagation be included as a designated use and described segment by segment in Appendix A in §307.10.

Seagrass propagation and wetland water quality functions are important uses that need to be protected. The commission agrees that seagrass propagation should be a separate use but is not proposing specific numerical water quality criteria for seagrass at this time. The commission may consider additional numerical criteria needed to support the seagrass use in future water quality standards revisions. The adopted additions of separate uses for seagrass propagation and wetland water quality functions apply to existing significant stands of submerged seagrass and wetlands. Existing uses are defined in §307.3(23). The commission recognizes the utility of designating seagrass as a use under the subcategory of aquatic life use and including the designated use in Appendix A. However, additional evaluation is needed before designating seagrass uses to specific water bodies in

Appendix A, and these designations may be considered in future revisions of the water quality standards.

SECTION 307.8

Austin, D-Koch, and NWF suggested that the condition to preclude acute criteria at flows less than one-fourth of the 7Q2 in §307.8(a)(2) should be removed and that acute criteria should apply at all flows. D-Koch also commented that not applying acute criteria below one-fourth 7Q2 would not provide for a zone of passage for aquatic organisms. EPA noted that they interpreted the standards as indicating that lethality is prohibited at all stream flows.

The commission responds that the implementation of a critical low-flow for acute criteria is needed in order to establish an instream design flow for calculating effluent limits for wastewater discharge permits. In addition, this proposed change is compatible with the existing water quality standards, which already state in §307.8(b)(2)(A) that “. . .ZIDs (zones of initial dilution) in streams and rivers shall not encompass more than 25 percent of the volume of stream flow at or above seven-day, two-year low-flow stream conditions.” The proposed change will create internal consistency within the standards. It is not intended to change current permitting procedures, nor to change measures of compliance with existing permits. The narrative existing language for protection of zones of passage in §307.8(b)(6), and for protection from lethality in zones of initial dilution in §307.8(b)(2) still apply. The commission notes that this change, and the commensurate change in §307.6(c)(6), is in accordance with the EPA’s guidance document, *Technical Support Document for Water Quality-based Toxics Control* (1991). This guidance indicates that water quality standards should protect water quality for designated uses in critical low-flow situations, and the guidance document also

recommends the kinds of extremely low stream flow conditions below which numerical toxic criteria do not apply. The commission agrees that in establishing water quality standards, states may designate a critical low-flow below which numerical criteria do not apply. For these reasons, this change is adopted as proposed.

NWF stated that the inapplicability of numerical criteria to storm water as stated in the second sentence in §307.8(e) may provide for a specific regulatory exception. EPA suggested that the statement, “numerical criteria are frequently not applicable to the short term effects of storm water” could be changed to “may be temporarily exceeded.”

The commission agrees that this statement is unclear, and this sentence has been removed. In addition, descriptive language dealing with the short-term effects of storm water on water quality does not apply to this specific rule and is more suitable within regulatory guidance, and this proposed language is also removed from §307.8(e) in the adopted rule.

CS, Lloyd, Gosselink, NWF, TML/TAMSA, and SC-Houston indicated that the determination of water quality violations based upon the presence or absence of human activity as stated in §307.8(e) would be difficult and creates ambiguity when assessing water quality exceedances. Many of the watersheds that are assessed are impaired to some degree by human activity. Therefore, determinations of violations due to these influences would not appear to be realistic. NWF suggested that the determination as to whether the exceedance is caused by human activity creates an obstacle for the protection of water quality. It would be difficult to discern whether the exceedance was due solely to human activity and thus would prevent the commission from taking action when a violation did indeed occur.

The commission agrees that this statement introduces confusion and as a result the sentence concerning violations and human activity has been removed. Violations will be determined based upon the implementation of best management practices, technology based effluent limitations, or both in combination with instream monitoring.

TML/TAMSA suggested that the violation should not be considered unless the exceedance is caused by human activity and persists during normal flow periods.

The commission responds that this approach could potentially allow designated or existing uses to be impaired as a result of additional discharges during high flow events. References to storm water and human activity have been removed from this section, as discussed in previous comments and responses.

NWF suggested that a definition should be included for “wet weather” as it pertained to storm water discharge.

Due to other changes in response to comments in this section, the words “wet weather” have been removed and thus, does not require definition.

Austin stated that the applicability of standards is unclear in §307.8(e) and that the *Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data* states that screening may also include data collected at high-flow periods.

The application of standards during storm water conditions refers to instream standards and not to storm water discharges. Any exceedances of water quality standards would be determined by instream monitoring during low-flow periods.

Corpus Christi objected to the imposition of best management practices to protect water quality uses, and stated that there is no basis for a city to demonstrate when a particular BMP is inappropriate, nor are there safeguards to prevent TNRCC from imposing requirements affecting land use management and development. SAWS commented that implementation of BMPs is proposed without fully identifying criteria for assessing need, efficacy, or cost/benefits. Conversely, TXDOT and TCC supported the use of BMPs in storm water permitting.

The commission responds that the potential use of BMPs is an important option for storm water permitting, particularly as one alternative to storm water outfall effluent limits, which are extremely difficult to develop and which may not be achievable. Compliance with the requirements of BMPs to control pollution during high-flow events will be done through the use of instream monitoring during normal- or low-flow periods. The commission also notes that this approach is in accord with current federal NPDES storm water permits, and these provisions do not establish new regulatory authority or requirements.

SECTION 307.9

Several commenters stated that the TNRCC guidance for screening and assessing Texas surface water quality data (referred to in the proposed rule as the most recently adopted edition of *TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data*) should not be used for

determining standards attainment. They argued that the document should be used only for screening purposes and not for assessing standards compliance. Most all of these commenters also made the specific recommendation that the document be subject to a formal public review, comment period, and rule making process. TCC commented that the information contained in the document needs to be adopted by rule, arguing that the procedures for adopting the document currently do not require a response to comments. TML/TAMSA commented that frequency, duration, and magnitude of exposure to a pollutant are important components to a determination of standards attainment which should be described in the agency rule rather than a guidance document. TML/TAMSA also raised the concern that the guidance document changes too often for those affected by it to be able to keep abreast of the commission's methods.

The commission disagrees with the commenters who suggest that the guidance document must be adopted by rule. The commission responds that the adopted standards rule provides the framework for regulatory determination of standards attainment. The latest adopted version of the guidance document is used to provide additional details concerning how numerical criteria can be compared to instream conditions. In most instances, instream criteria are compared to numerical criteria established in the water quality standards. In the case where sufficient monitoring data for exact comparisons do not exist or where numeric criteria have not yet been developed, compliance is sometimes estimated using screening levels. Screening levels are intended to provide the best comparisons that can be reasonably attained with available data and numerical criteria in the water quality standards. The guidance document has resulted from the available science; it is not intended to be exclusive or unchanging. The commission believes it represents the best use of available data and current assessment methodologies.

It would be unreasonable to revise the water quality standards at the frequency necessary to keep information current in the guidance document. The recent, typical pattern has been to revise the document cyclically, prior to completing the assessment of surface water quality conditions in the state. The cycle has run either annually, corresponding to the commission's basin cycle, or once every two years, corresponding to the federal minimum requirements for a surface water quality inventory. An additional consideration is the need to adjust the guidance to allow for evaluation and possible incorporation of changes evolving at the federal level. In the past few years, the EPA has placed considerable focus on the methods which each state should use to assess attainment of water quality standards. For all these reasons, making the more flexible guidelines into a rule is not a practical solution to the concerns commenters may have with the current guidance.

The commission recognizes the high level of stakeholder interest in guidance for assessing standards attainment.

The guidance document has received external public review, particularly by Clean River Program partners and other monitoring entities. However, the commission responds that it agrees with the commenters that additional public participation is desirable and has already initiated a process to implement improvements on the next update of the guidance document. This year, the commission is convening an *ad hoc* work group composed of a broad spectrum of interests to receive input into an amended guidance document. The next revision of the guidance document will be subject to more public review and comment than have past versions. A response to comments will be developed. If there are comments which reveal the need for rule making, they will be considered by the commission for incorporation into the water quality standards. In deciding whether to prepare a CWA §303(d)

List for submittal in April, 2001, the commission will consider the need for additional time to develop this enhanced process of public involvement. It is important to take the necessary time for greater involvement of stakeholders and the general public before proceeding with a new assessment of impaired water bodies.

The commission has adopted revised language in this section in the various references to the guidance document. Rather than referring to *TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data* as the “latest version” or the “latest adopted version,” all references now refer to it as the “latest approved version.” What this means administratively is that before the executive director begins using a revised guidance, it will have been approved by the commission, after completion of the public participation process described above.

LCRA suggested that the procedures manual referenced in §307.9, entitled *TNRCC Receiving Water Assessment Procedures Manual*, needs incorporation into rules. LCRA commented that the document needs a process for the river authorities and other Clean Rivers Program partners to review and recommend changes to TNRCC. TCC commented that it does not object to this procedures manual being referenced in the rule, since it pertains to methods used to collect and analyze samples.

In response to these comments, the commission believes that procedures for collection and analysis of scientific data falls outside of the scope of the water quality standards and need not be identified by rule. Nonetheless, since river authorities like LCRA are often asked to follow the procedures in the *TNRCC Receiving Water Assessment Procedures Manual*, the commission does agree with the comment that there should be efforts to receive and incorporate appropriate comments into the

document before it is finalized. The commission will do so on future revisions of the existing procedures manual.

SRA stated that the guidance document entitled *TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data* does not include methods for determining compliance with the new proposed contact recreation standards.

The commission acknowledges this comment and responds that it has awaited the final adoption of revised water quality standards before it will proceed with revisions to the guidance document. Indeed, the adopted version of the contact recreation standards includes several modifications from what was proposed, to incorporate substantial public comment, as described earlier in this preamble.

SRA commented that the guidance document entitled *TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data* describes the support or nonsupport of the contact recreation standard in contradictory terms, when comparing the guidance document to proposed §307.9.

The commission responds that with the adoption in the water quality standards of a single sample maximum for contact recreation use attainment, the new criterion will be implemented more accurately into the guidance document. As previously described, the commission is seeking to revise the guidance this year and will ensure it is consistent with the water quality standards prior to completing the April, 2002 list of impaired waters.

Austin stated that the revised language in §307.9(b) needs clarification to include the technical staff in decisions to accept samples collected from unapproved locations.

The commission agrees and has revised the language to clarify that the agency will review alternate sample locations. The commission notes that it is a crucial role of the agency to determine the appropriateness of surface water quality sampling locations. The agency puts considerable effort into setting up a coordinated monitoring schedule each year. Approved monitoring locations must be consistent with data needs and represent the water body being assessed. Also, after further evaluation of the proposed amendment of this subsection, the commission believes the proposed title of the subsection "Sampling Locations" narrowed the scope beyond what the existing standards specified. For this reason, the proposed title has been deleted to make it clearer that the agency is responsible for judging both the representativeness of samples and their location of collection.

EPA commented that procedures for assessing the vertical extent of a mixed surface layer for tidal waters and non-tidal flowing streams should be included in the rule.

The commission responds that recommended procedures for assessing the extent of the mixed surface layer in tidal waters is more appropriately included in the guidance document, as referenced in §307.9(c)(2). In the current guidance, a mixed surface layer for a tidally-influenced water body is described as the portion of the water column from the surface to the depth at which the specific conductance is 6,000 μ mhos greater than the conductance at the surface. For reservoirs, it is described as the portion of the water column from the surface to a depth at which the water temperature decreases by greater than 0.5 degrees Celsius. However, this recommendation for the

mixed layer has been changed several times in the guidance as additional statewide data on vertical stratification is collected and evaluated, and the same recommendation for the mixed layer may not always be appropriate for every water body. Therefore, these guidelines for determining the mixed layer are currently presented in the guidance document rather than in the standards.

EPA commented that the rule should clarify where in a water column the dissolved oxygen minima apply. Also, EPA and NWF commented on §307.9(c)(3) that dissolved oxygen criteria should be applied to the whole water column, not just the mixed surface layers of tidal water and non-tidal flowing streams. NWF commented that the wording changes proposed for non-tidal flowing streams and tidal waters is a lowering of the existing standards since a mixed surface layer would be expected to have a higher dissolved oxygen concentration.

The commission responds the proposed language, the revisions it has made to §307.9(e)(6)(B), and the definitions of mixed surface layer, taken together describe where and how the dissolved oxygen minima are to be applied for standards attainment purposes. The commission disagrees that the changes to §307.9(c)(3) result in a lowering of the standards and has adopted the proposed changes. For non-tidal flowing streams, thermal stratification is only likely to occur, if at all, when stream discharge, velocity, and turbulence are low. The commission concludes that in such a situation, the conditions in the mixed surface layer are representative of the stream's aquatic life use attainment. This corresponds to dissolved oxygen profiles in a reservoir when stratification occurs and oxygen is consumed through respiratory processes in the hypolimnion. The commission's proposal for tidal waters represents a rewording of the previous requirements that separately described bays and tidal streams. The previous standard included consideration of only the mixed surface layer in a tidal

stream with density stratification. For bays, the revision replaced a standard that did not consider unnaturally-occurring bottoms (dredged channels) in bays as subject to the dissolved oxygen criteria. The commission also notes that bays in Texas are shallow and generally well-mixed. Stratification occurs in association with deeper and less mixed dredged channels. For these reasons, the commission believes these changes to the rule do not lessen the stringency of how the dissolved oxygen criteria are applied and the revisions improve and clarify the commission's procedures for measuring attainment.

Austin, EPA, and TML/TAMSA commented that the sampling periodicity and evaluation for chloride, sulfate, and TDS, as proposed in §307.9(e)(1), is unclear and may cause non-representative sampling.

The commission agrees and has revised the language to provide clarity to reflect sampling periodicity and evaluation procedures. Additional details beyond the basic framework of the water quality standards are provided in the guidance document.

NWF and TCEA commented that they object to the absence of a single sample maximum as a measure of standards attainment for contact recreation uses.

The commission agrees with the commenters, as previously described in the commission's response to comments on §307.7(b)(1). Additionally, §307.9(e)(3) has been adopted with revised wording to correspond to §307.7(b)(1).

TML/TAMSA commented on §307.9(e)(4) and §307.9(f) with specific proposals for measurement of standards attainment for numerical acute toxic criteria, numerical chronic toxic criteria, determinations of

total toxicity attainment, attainment of numerical human health criteria, and determinations of biological integrity.

The commission responds that it appreciates the comments and the effort taken to develop these suggested measures. These comments are useful in the dialogue the commission will begin this year with interested parties to refine and revise the current guidance established in *TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data*. However, the commission believes it would be inappropriate to adopt any suggested measures at this time since specific proposals must first be considered and receive public comment.

TPWD, EPA, and NWF commented on proposed §307.9(e)(6)(B) that the proposed language removes the requirement to measure dissolved oxygen during the periods when it will be at its lowest. They suggest that an effort should be made to assess 24-hour dissolved oxygen or take instantaneous measurements in the early morning hours.

The commission responds that over the years it has collected extensive data which has assisted in evaluating diel trends of dissolved oxygen in Texas waters. While early morning may generally result in observations of a dissolved oxygen minimum, the minimum can occur later in the day as well. For instance, this occurs in streams with heavily shaded banks. It is for this reason that the proposed language deleted the phrase referring to collections within two hours after sunrise. Nonetheless, the comments have led the commission to further evaluate this issue. In response, the commission has adopted language which clearly states its protocol for dissolved oxygen attainment. The language states that it will compare a 24-hour average dissolved oxygen criterion to the average of values

measured over a diel period. The commission will compare a minimum dissolved oxygen criterion to the result obtained from a single sample measurement.

The commission notes that time of day is an important factor in evaluation of instream dissolved oxygen values. However, it is but one of several considerations in the evaluation of these type data. Other important considerations determine how representative a dissolved oxygen sample may be. These include, but are not limited to, sample location within a water body which has a variety of habitats, depths, and mixing, the range of values by depth, the discharge flow of a stream, whether the discharge flow is at or below its assessed seven-day, two-year low flow, the percent saturation of dissolved oxygen, and the extent to which the water body has been assessed. For these reasons, it is critical that any person, group, or monitoring entity evaluating any one criterion or data set should be cautious in making a binding attainment decision based on the data set.

GBF, SC-Houston, and NWF commented on proposed §307.9(f) and stated that the inclusion of biological integrity to the components being assessed is a positive step, but the commenters expressed concern with the possible manner in which the commission might apply biological integrity to assess aquatic life use attainment. The commenters urged the commission to undertake further public participation before proceeding with the rule's adoption. NWF questioned the manner in which the commission will use biological integrity as an assessment tool. The commenter expressed concern that the commission will use biological integrity as one of many factors in evaluation of aquatic life use attainment, with a weight of evidence approach. For instance, determining aquatic life use is attained due to the biological integrity assessment, in spite of numeric dissolved oxygen criteria showing nonattainment.

The commission responds that it is a positive step to formalize biological integrity in the water quality standards as an assessment tool. This approach is consistent with the existing permitting program which uses receiving water assessments to characterize the aquatic life use which can be attained in receiving waters. The commission's intent is to note that biological integrity is an additional measure for assessment of water quality standards compliance. The commission has adopted the new subsection and will use this new framework as a starting point. The commission will seek the refinement of the guidance document entitled *TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data*, which will include a broad-based effort to describe guidelines for assessing biological integrity. Simple inclusion of this measure is not intended to contravene compliance with other existing requirements of the water quality standards.

SC-Houston and TPWD commented that the proposed language in §307.9(f) describes species abundance and diversity but precludes other aspects of biological integrity such as the health of organisms. The commenters suggested a more broad definition.

The commission agrees and has amended the language to avoid conflict with the definition of biological integrity as provided in §307.3 of this title (relating to Definitions and Abbreviations).

NWF commented on proposed §307.9(g) by indicating that the method for making narrative criteria meaningful is through the determination of standards attainment. The commenter urges the commission to make the process of approval of guidance such as *TNRCC Guidance for Screening and Assessing Texas Surface and Finished Drinking Water Quality Data* more participatory.

The commission has responded to the concern, as is previously described.

SECTION 307.10 - APPENDIX A

Numerous comments were received relating to proposed site-specific revisions in §307.10 Appendix A. LPCASS expressed opposition to downgrades for individual stream segments. Fifty-six individuals expressed opposition to all downgrades. Some individual commenters, NFW, and TPWD expressed concern that the downgrades have removed some water bodies from Tier 2 degradation consideration. GCA, EHMCA, and TCC supported all proposed site-specific criteria and use designations.

The commission responds that water quality standards and criteria were originally established to provide a high level of protection to most waters in the state based on a limited amount of data. The commission used conservative presumptions where information was lacking, so as to ensure that the highest uses which could occur were protected. As more data are collected and evaluated, it is appropriate to establish revised site-specific standards from time-to-time to reflect actual existing and attainable uses and criteria. When such revisions occur, they do not downgrade water quality, but rather set standards that reflect actual stream conditions in relatively unimpacted areas. The commission will continue to evaluate the applicability of Tier 2 of the antidegradaton policy, in order to ensure that appropriate water bodies are included. The site-specific revisions are based on additional and more accurate data, and the commission is adopting them as proposed.

PIC supported public participation in the Use Attainability Analyses process.

The commission responds that the public hearing on the proposed water quality standards provides an opportunity for public participation regarding the results of use attainability analyses.

SC-Houston expressed opposition to any weakening of water quality standards for chloride, sulfate, TDS, or other criteria in §307.10, Appendix A. TPWD expressed concern that the criteria are being changed to accommodate pollution and would like more information on the rationale of the changes.

The commission discussed the issue of dissolved minerals (chloride, sulfate and TDS) with the Water Quality Standards workgroup and stated that those criteria that are less than the secondary constituent levels for public drinking water as specified in 30 TAC §290.113 would be grouped into classes. No overt opposition to this approach was raised during the workgroup sessions. The commission chose the following groups for chloride and sulfate criteria (all values in mg/L):50, 100, 150, and 200. TDS criteria were generally grouped by 100 mg/L increments from a minimum of 200 mg/L to 1,000 mg/L. Criteria were calculated from period of record data for each segment using the commission's procedure for deriving dissolved mineral criteria and then assigned to the appropriate group. Segments with very low existing criteria were assigned proposed criteria based on the general groups. The secondary constituent levels are: chloride (300 mg/L); sulfate (300 mg/L); and TDS (1000 mg/L). Current federal guidance contained in the EPA document entitled *Ambient Water Quality Criteria for Chloride-1988* recommends 230 mg/L of chloride for chronic protection of freshwater aquatic life. A concentration of 230 mg/L of chloride is protective of most aquatic invertebrate and vertebrate communities. Of the 107 segments with a proposed change to at least one of the dissolved mineral criteria, only six segments (0229, 1217, 1242, 2004, 2310, and 2312) were proposed with one or more of the dissolved mineral criteria higher than the secondary constituent

levels or a chloride criteria higher than 230 mg/L. Of these, only Segments 1242 and 2310 are designated as public water supplies. The justification for the revision to Segment 2310 is presented in the response to comments provided by USIBWC. The proposed criteria for Segments 1242 and 2312 are all lower than the existing criteria. The other three segments did not exhibit any trends of increasing concentrations since 1987. The existing chloride criteria for all six segments already exceeds 230 mg/L; however, the proposed criteria are reflective of ambient chloride concentrations in the segments and are protective of the aquatic life that exists in these segments. The proposed change in the sulfate criteria to 500 mg/L for Segment 0613 was a typographical error as it should have been 50 mg/L which is being adopted. Data was supplied by the LCRA and Austin on segments in the Colorado River Basin and some changes in the proposed criteria were made after the commission reviewed the data. These changes are discussed under the responses to LCRA and Austin comments. The sulfate criteria for Segment 2115 is revised back to the existing criteria. The proposed criteria are adopted as modified.

EPA supported the addition of aquifer protection in Appendix A to 14 segments in the Brazos, Guadalupe, and San Antonio River basins.

The commission adopts the revisions as proposed.

EPA accepted the changes in Appendix A for Segments 0501, 0502, 0503, 1242, 1256, 1257, 1802, and 1803. It also accepts the more protective criteria for minerals in Segments 1242 and 1256.

The commission adopts the revisions as proposed.

EPA recommended that the seagrass propagation use be designated for appropriate water bodies.

The commission did not propose this change because additional evaluation is needed in order to assign a seagrass propagation use to specific water bodies. These designations can be developed and considered for subsequent revisions to the standards.

TCONR, TCPS, and NWF expressed opposition to the proposed intermediate aquatic life use for new Segment 0230, Pease River, which currently is a portion of Segment 0220, Upper Pease River/North Fork Pease River. Rhodia supported the proposed intermediate aquatic life use for new Segment 0230, Pease River.

The commission responds that the proposed creation of Segment 0230 with an intermediate aquatic life use and associated dissolved oxygen criteria is supported by a use attainability analysis. The use attainability analysis determined that physical habitat and biological community characteristics upstream of the City of Vernon were indicative of a limited aquatic life use. Naturally occurring elevated concentrations of chlorides, sulfates and TDS may also limit the biological community. Downstream of the waste water discharges, both physical habitat and biological community characteristics improved to intermediate quality. The commission concludes that an intermediate aquatic life use is an appropriate attainable use for segment 0230 and adopts the revision as proposed.

General opposition to the creation of Segment 0615 with an intermediate aquatic life use was expressed in post cards and letters from over 1,109 individuals. Petitions with over 3,000 signatures were also received which expressed opposition to this change. FUSE, F&A, TCEA, UT-Tyler, LPCASS, PIC, SC-Houston,

TCONR, and TCPS opposed the creation of Segment 0615 and the change in aquatic life use from high to intermediate. SC-Houston opposed the intermediate aquatic life use designation for the upper reaches of Sam Rayburn Reservoir. TPWD expressed opposition to intermediate aquatic life use designation for proposed Segment 0615 and stated that the UAA was inadequate. They recommended that more sampling is necessary before the proposed change is adopted and that TNRCC should explore options that would limit the scope of the downgrade in permitting decisions. NWF expressed opposition to the proposed revision because it sets a precedent to lower small portions of streams when dischargers have difficulty meeting standards, that Tier 2 of the antidegradation no longer applies, and that the studies do not support lowering the aquatic life use. They also stated that the proposed change seems to be based more on economic considerations than on science.

One individual, a biologist, commented that the study to support the change in aquatic life use from high to intermediate was flawed and should not be used to support the change. Several individuals wrote in opposition to lowering water quality standards on the riverine portion of Sam Rayburn Reservoir. Several individuals are local fishermen and expressed concern about the fishery. Some of these commenters requested that TNRCC not lower the standards to accommodate industry. Two individuals commented that if standards are lowered the water quality and fishing industry will suffer and asked that TNRCC protect the lake. One individual requested that TNRCC not let anyone pollute water of the state and that TNRCC do the right thing. Another individual requested that the TNRCC stop the dumping of waste into Sam Rayburn Reservoir. One individual commented that they wanted Sam Rayburn Reservoir off the impaired list and urged TNRCC to bring industrial and septic tank polluters into compliance. One commenter requested that the pollution laws be strengthened. Another, in opposition to the lowering of aquatic life use and creation of Segment 0615, also opposed any variances for the paper mill.

Seven hundred nine individuals submitted post cards which expressed opposition to the proposed change in aquatic life use from high to intermediate in the upper arm of Sam Rayburn Reservoir. They noted that Sam Rayburn Reservoir was listed on the 303d list and expressed added concern that this change would allow additional aluminum to be discharged to the reservoir.

Seventy-five individuals submitted form letters which included the same language as on the post cards listed above to express their opposition to the creation of the new segment in the Angelina River Basin.

Twenty-nine individuals submitted form letters which referenced three documents available to the commission as evidence that the proposed change in designated use for Segment 0615 of the Angelina River is not supported. They also expressed concern that Sam Rayburn Reservoir has been identified as having water quality impairments and the proposed change is not consistent with water quality improvement goals of the agency.

Twenty-two individuals submitted form letters which strongly opposed the proposed change in designated use and the creation of a new segment for the upper portion of Sam Rayburn Reservoir.

Concerned Citizens for Clean Water provided a petition with 2,763 signatures opposing the proposal to establish Segment 0615 in the Angelina River Basin with an intermediate aquatic life use. The statement on this petition also expressed concern that Sam Rayburn Reservoir was being considered for listing on the 303d list as an impaired water.

Another petition with 241 signatures was received which expressed opposition to the establishment of an intermediate aquatic life use for a portion of Sam Rayburn Reservoir and about the proposed changes to criteria for aluminum as it relates to Segments 0611 and 0615 in the Angelina River Basin. It also expressed concern about the listing of Sam Rayburn Reservoir on the 303d list.

Under current federal regulations states have the primary responsibility for establishing surface water quality standards for waters in the state within the boundaries of the federal and state regulations and guidelines. In earlier versions of the standards rule uses and criteria for some segments were established without sufficient on-site water quality data and were based on limited information available at the time. The statute provides for a three-year cycle for review to allow appropriate revisions to be made that more accurately reflect existing water quality and attainment goals for a particular body of water. Current federal regulations also include provisions which outline procedures by which states can develop information to support revisions to standards which more accurately reflect appropriate site-specific conditions and goals. Approved approaches that states may use to evaluate water body specific standards include a determination of site-specific criteria that more accurately reflect peculiar characteristics of the water body (primarily related to water effects ratios dealing with toxic criteria), a use attainability analysis to determine water body specific conditions which determine uses that can reasonably be expected to be achieved, and an evaluation of significant economic and social circumstances which may require standards adjustment. The State of Texas has focused on the first two approaches because these are based on recognized technical evaluations of the water bodies in question.

The use attainability analysis conducted for the upper reaches of Sam Rayburn reservoir was conducted to determine the highest use that could be achieved in that water body if it were relatively unimpacted by pollution. The study achieved this by examining reference sites, as explained in the next comment. The study resulted in a proposal to adjust the standards by creating a new segment with uses and criteria which more appropriately reflect conditions in this water body. The study was conducted exclusive of economic and significant social circumstances in accordance with state and federal guidelines and regulations related to quality control and quality assurance. Procedures used to conduct the analysis are recognized as technically sound and have been used in other areas of the state, such as segment 0704 Hillebrandt Bayou, segment 0841 - Lower West Fork Trinity River, segment 1245 - Upper Oyster Creek, segment 1255 - Upper North Bosque River and several others to develop standards which more appropriately reflect local conditions and water quality goals.

The study conducted by Donohue Industries Inc. (previously Champion International Corp.) was conducted in accordance with a work plan developed in 1994 using existing sampling protocols which were acceptable to the executive director at that time. The sampling technique (boat electrofishing) selected by Donohue's consultant was in their professional opinion the most suitable for use at all the sites so that a representative comparison of the data could be made. In 1996, after Donohue's study was complete, the executive director revised the sampling protocols to stress that fish sampling should be conducted using both electrofishing and seines, when possible. As indicated in the consultant's report to the commission, seining was not possible at all of the sites sampled during their study. Starting in 1998, the commission began sampling the Angelina River at two sites located upstream and one site located downstream of the Paper Mill Creek confluence. Although these sites were not at the same locations as those used in the Donohue study, the commission personnel were able to use both

boat electrofishing and seining at the sites. The commission collections averaged three more species per sampling event as compared to the Donohue study for the upstream Angelina River sites. The majority of the fish species collected in the commission samples was by the electrofishing technique. Overall, the results of the sampling at the upstream Angelina River sites in both studies are similar based on the average scores of the Index of Biotic Integrity. The commission data also indicate that a high aquatic life use is not attained at the upstream Angelina River site. The commission has reviewed data collected from several sources, including substantive and extensive public comment, and concludes that it is appropriate to create Segment 0615 in the Angelina River basin with a designated aquatic life use of intermediate. The commission further makes clear that this revision affects only a limited, riverine portion of the watershed where the Angelina River enters Sam Rayburn Reservoir. The amendment which is adopted does not affect the existing, designated high aquatic life use for the main body of Sam Rayburn Reservoir.

Individual commenters challenged the validity of the scientific study conducted to provide data to lower the aquatic life use and pointed out shortcomings of the study. The commenters used other documents and information to indicate that the reference sites were not appropriate. Some commenters requested more information to help them understand how TNRCC determines the adequacy of reference sites.

Much of the criticism of the Donohue study centers on the lack of seining and the assumption that electrofishing tends to under represent smaller species such as minnows and darters which are important components of the Index of Biotic Integrity (IBI). It should be noted that the electrofishing effort in the Donohue study considerably exceeded the effort normally considered adequate in the TNRCC sampling protocols. Comparing the three Donohue samples at the upstream Angelina River

site to seven TNRCC samples at upstream Angelina River sites, the TNRCC samples averaged one more minnow species and one less darter species than the Donohue samples. The individual scores of the IBI at the Angelina River site of the Donohue study fell within the range of scores of the IBI at the Angelina River site of the TNRCC study. Therefore, the TNRCC concludes that the Donohue sampling effort was adequate and comparable to the TNRCC sampling effort. Reference sites are always used to determine aquatic life use where there is an existing discharge. Reference sites are chosen in two ways, either a site upstream or an adjacent watershed. A site is chosen that is as similar as possible in hydrology, habitat, geology, and water chemistry. The goal is to select a site that would be representative of the area downstream of the discharge if the discharge were not present. For Segment 0615, sample sites were located both upstream of Donohue's discharge and on an adjoining watershed, Attoyac Bayou. Rarely are reference sites identical to those to which they are to correspond. Attoyac Bayou is similar in hydrology and habitat to that of the Angelina River, and therefore, serves as an adequate reference site in conjunction with the upstream Angelina River sites.

One individual indicated that he had reviewed the report "Site-Specific Dissolved Oxygen Criteria Development for the Riverine Reach of Segment 0610" and offered questions concerning the relationship of water quality to desired species and commented on holding times of samples. The individual believes that the study should not be used to lower water quality standards because of its shortcomings.

The studies collected fish and benthic invertebrates to determine aquatic life use, but were not used and are not intended to be used to determine if conditions were ideal for any particular species. The method for determining aquatic life use takes into consideration feeding characteristics, numbers and

types of fish or benthic invertebrates, tolerance to stressful conditions, hybridization, and diseases.

The chemical and physical characteristics also play a role in the types of fish and benthic invertebrates that would be expected to occur. The proposed change in dissolved oxygen criteria would not alter the types of organisms the agency would expect to occur in the newly proposed segment. The agency has documented naturally occurring dissolved oxygen concentrations of less than 5.0 mg/L as a 24-hour average in many East Texas streams which still maintain a diverse fishery. The commission is unable to respond to the comment concerning deterioration of samples because the comment did not state what type of samples. The alleged shortcomings of the study noted by TPWD, TNRCC regional staff, and others are responded to in the previous paragraph.

Some individual commenters raised concerns that the report "Site-Specific Dissolved Oxygen Criteria Development for the Riverine Reach of Segment 0610" indicates certain data collected at one of the reference sites was not used and the commenters questioned the validity of not using this data.

The commission reviewed all of the data collected by Donohue and the regional staff and used all of the data in determining the appropriate aquatic life use to assign to Segment 0615.

One individual commenter with a mathematics background questioned the results from Table 19 in the study "Site-Specific Dissolved Oxygen Criteria Development for the Riverine Reach of Segment 0610" and commented that the results indicate the reference sites support high aquatic life uses.

The method for determining aquatic life use in Table 19 was not used in determining aquatic life use for Segment 0615. The TNRCC used the IBI, which is widely used to assess fish communities and

was adapted to Texas streams and fish communities. This method of measuring biotic integrity directly evaluates characteristics of a fish community, which provides a better picture of the community than dissolved oxygen and habitat. The results from the two methods would not necessarily be the same. The commission also evaluated the data using a draft regional IBI developed by TPWD, which also resulted in a calculation of an intermediate aquatic life use.

One individual expressed opposition to the creation of Segment 0615 and the change from high to intermediate aquatic life use. This individual opposed breaking up the existing segment into parts and commented that it was irresponsible to alter the segment boundaries.

The new segment separates the riverine portion of the Angelina River from Sam Rayburn Reservoir proper. The hydrology of Segment 0615 is different from that of the reservoir. The new segment water levels fluctuate from riverine to lake-like depending on the level of the reservoir, and therefore the creation of the new segment is appropriate.

Some individual commenters noted that chemical measurements in the study "Site-Specific Dissolved Oxygen Criteria Development for the Riverine Reach of Segment 0610" and other data indicate the reference sites exhibit a dissolved oxygen concentration above 5.0 and questioned why that information does not result in TNRCC concluding the appropriate aquatic life use as high.

The commission bases aquatic life use on aquatic communities, not on dissolved oxygen levels. Fish and benthic invertebrates are collected to assess those communities. As previously noted, East Texas

streams can have uncharacteristically low dissolved oxygen levels but still support a diverse fish and invertebrate community.

Some individual commenters cited letters and memoranda from technical staff at TNRCC and at TPWD, which they stated supports a conclusion that the high aquatic life use is appropriate. A TPWD letter in 1996 indicated that water quality upstream from the Paper Mill Creek confluence is indicative of a high aquatic life use. A 1996 interoffice memorandum from the TNRCC Beaumont Region critiqued the study done for Donohue paper mill and recommended the standard not be revised.

Subsequent sampling by TNRCC regional staff on the Angelina River addressed the comments and concerns in both the letter from TPWD and the memorandum from TNRCC technical staff.

Some individual commenters also included or referenced correspondence from the United States Forest Service from 1996, which opposed downgrading of water quality standards for East Texas waters.

The commission responds that the letter cited was one in opposition to a proposal by the Donohue paper mill's predecessor. This request (to revise the aquatic life use of the now adopted Segment 0615 to "low" with a corresponding dissolved oxygen criteria of 3.0 mg/L) was not approved by the executive director.

The referenced letter also states a strong support for retaining a presumed standard of high aquatic life use, and a corresponding dissolved oxygen criterion of 5.0 mg/L. The commission responds and notes that it has no disagreement with the statements in the letter, when in the context of denoting

general environmental conditions in streams in the state. However, this presumption is modified when streams are accurately assessed and assigned actual or attainable designated uses.

One individual submitted data from samples collected in the receiving waters below the discharge of the Donohue paper mill and provided discharge information from Donohue. Concerns were raised over the water quality conditions resulting from the discharge into Paper Mill Creek, Angelina River, and Sam Rayburn Reservoir. Several individuals opposed to the revision charged that the creation of Segment 0615 was so that Donohue can continue to pollute Sam Rayburn Reservoir. The comments included data collected on the Angelina arm of Sam Rayburn Reservoir by two masters degree candidates. One individual commented that the upper end of Sam Rayburn Reservoir and the Angelina River were dying due to drought and poor water quality. The commenter stated that only gar (fish) were able to survive and that there was black sludge filling in the lake. This individual indicated that he provided the paper mill with information on ways to improve water quality. The commenter has seen ducks stained by the black water and fish dead because of the lack of oxygen. A commenter submitted a picture of the confluence of Paper Mill Creek with the Angelina River which notes a black plume of water associated with the paper mill effluent. One commenter provided pictures of Sam Rayburn Reservoir following heavy rains in 1999 and the impact of releases from sludge ponds at the paper mill. The commenter stated that previous efforts to stop dumping into the river by the paper mill had been unsuccessful. The individual mentioned that some plant and bird life had disappeared and attributed it to the discharges from the paper mill. One individual commented that TNRCC should not allow discharges into the lake, suspend any discharges, and require those that have polluted Sam Rayburn Reservoir to pay for studies and clean up and restoration, and stated that other industries as well as individuals have to pay to clean up their pollution and so should the paper mill.

The commission responds that it does not intend to allow surface water pollution and that its goal is maintaining and improving the water quality of Sam Rayburn/Angelina River watershed. Designation of uses and criteria are made on the basis of specific quality-assured data collected to indicate attainable uses. Significant water quality assessments of the watershed have been performed by commission staff and by regional staff and private entities. The TNRCC Beaumont regional office regularly monitors permit compliance and effluent quality from the Donohue paper mill. The commission actively responds to noncompliances with enforcement actions.

Water quality maintenance is achieved through permitting and enforcement. A permit for discharge must include effluent limitations that will cause the stream to meet or exceed the water quality standards. The Donohue paper mill does not currently discharge at a quality that is necessary meet dissolved oxygen requirements in the warm weather months. But, since the paper mill currently operates under a variance from the current aquatic life use designation, the adoption of the intermediate aquatic life use will result in a permit amendment request. In the amended permit, the executive director will draft final effluent limitations, a schedule for construction of wastewater treatment facilities, and a deadline for completion not to exceed three years.

The executive director's draft amended permit is expected to include significantly more stringent requirements compared to the current variance and is expected to reduce biochemical oxygen demand (BOD) loading into the river and headwater area of the reservoir. Consequently, the commission disagrees with commenters who believe that existing water quality will degrade as a result of the standards change. Based on current modeling protocol, the executive director expects it will recommend the 30-day BOD daily average loading from the paper mill will be reduced in the warm

weather months by greater than 50%. The commission suggests that the public and interested parties should participate in the anticipated permitting process when the paper mill requests a permit amendment.

However, several individual commenters expressed concerns over stream conditions outside the scope of today's rule amendments. The commission is not amending these rules to revise its standards relating to color. As described elsewhere in this response to comments, the commission is not adopting a site-specific aluminum water-effects ratio. There are no Angelina River/Sam Rayburn Reservoir site-specific revisions to the dioxin criteria being adopted.

One individual stated that the standard revision would result in an adverse fiscal impact to the fishing industry because of the pollution in the reservoir.

As detailed above, the commission responds that its adoption of the intermediate aquatic life use will likely result in the improvement of existing water quality. The worsening of pollution would not likely occur. The commission disagrees there would be a negative fiscal impact, because water quality is expected to improve, and the reservoir will continue to support a healthy fishery.

One individual requested that TNRCC table the change in aquatic life use or creation of a new segment until after the presidential election, and requested that TNRCC talk to local individuals living in the area about the water quality, and use local skills in making a decision. Another individual commented that TNRCC should delay a change in the segment until after the modernization of the paper mill was completed.

The commission responds that it has enough information supporting its decision to adopt the standards change. However, it will continue to assess water quality in the watershed and will continue to work closely with regional and local governments in the area. Opportunities for interaction between the agency and interested parties in the watershed exist for exchanging information, setting water quality priorities, coordinating surface water quality monitoring schedules, and targeting monitoring. Through the Angelina & Neches River Authority, the agency implements many stakeholder participation efforts, associated with the Clean Rivers Program, identification of water quality impairments, and in development of TMDLs.

The commission disagrees that the paper mill should be modernized before the standard is revised. Consistent with federal and state environmental requirements, construction of required wastewater treatment facilities occurs once all commission and EPA approvals for a standard change occur and the construction and proposed discharge are authorized.

One individual commented that with modernization of the plant, jobs will be lost, and the jobs that support the fishing and recreation on the lake outweigh those that will be lost from the paper mill. Another individual suggested a change in the standard be delayed until an economic study of the reservoir is prepared by the TPWD. One individual commented that the paper mill would remain profitable even if the aquatic life use remained high and that it would just cost them more money to comply with the use. The commenter also questioned why the Donohue paper mill would continue to spend \$230 million if the mill didn't think they could get the aquatic life use lowered. Several individuals opposed to the change commented that retaining the high aquatic life use would not result in closure of the paper mill, but would

only reduce the profit from the mill. Some individuals supplied references and other information on zero discharge systems that should be an option for Donohue paper mill instead of revision of the standard.

The commission responds that the decision to revise the standard is based upon the results of the scientific studies carried out. The Donohue paper mill did provide information on the feasibility of various treatment alternatives. However, the commission's decision is not the result of an economic analysis of options for management and disposal of wastewater at the Donohue paper mill. The commission has not analyzed profitability of the paper mill. The commission notes that other commenters on this rule amendment also offer points of view on the issue of the paper mill's viability. The commission disagrees there would be a negative fiscal impact on the fishing industry from this adoption. The amendment of this rule will not result in a lowering of the existing water quality.

The Cities of Lufkin and Nacogdoches, Agriculture, Angelina County, DETCL, DEC, DETDA, Donohue Industries, the Honorable Jim Turner, LP, LCVB, LCCBC, Lufkin Daily News, TXAFL-CIO, TFA, and TFIC, expressed support of the creation of Segment 0615 and the assignment of an intermediate aquatic life use. Twenty-eight commenters sent in a form letter which supported the new segment. One thousand seven hundred ninety-nine commenters sent in post cards which supported the segment creation and assignment of intermediate aquatic life use. One commenter who supported the segment creation included a history of the paper mill in Angelina County. Several commenters indicated that the commission was assigning the appropriate aquatic life use to this section of the Angelina River. One commenter who supported the new segment and criteria included extensive technical information on the paper mill's biomonitoring, discharge, and permit limits and on ambient conditions of dissolved oxygen and aluminum in Sam Rayburn Reservoir. Nine commenters, including the Honorable Phil Graham and the Honorable

Kay Bailey Hutchison, requested that the commission consider science and/or all of the facts when considering whether to adopt Segment 0615 and an intermediate aquatic life use. One individual requested that the commission reclassify the segment to reflect the studies performed. The chairman and executive director of the Freshwater Angler Association supported the commission's use of sound science in designating the segment and its aquatic life use. A large number of commenters discussed the economic support the paper mill provides Angelina County. Eight commenters supported Donohue Industries, Inc. Three commenters, including LNVA, stated that they had never seen any evidence of ecological concern in the portion of the Angelina River being designated Segment 0615.

One individual pointed out that the paper mill was very important to Angelina County and that there should be a way to accommodate all sides of the issue. One individual requested that the commission take a realistic look at the paper mill and what it means to the City of Lufkin. One individual requested that the commission consider the people of Lufkin as well as the scientific, economic, and environmental data to create Segment 0615 and assign it an intermediate aquatic life use. TLC requested that the commission aid Donohue in whatever technical endeavors they are pursuing.

The Angelina County Chamber of Commerce submitted a petition with 128 names and the International Brotherhood of Electrical Workers submitted a petition with 60 names in support of the proposal to establish Segment 0615 in the Angelina River Basin with an intermediate aquatic life use.

The commission appreciates the support for the proposed revision.

Comptroller provided comments relating to the economy of Angelina County and notes that the county has been designated as a “Strategic Investment Area” for the year 2000. This means that the county’s unemployment rate is higher than the statewide average and per capita personal income is lower than the statewide average. The commenter stated that if the paper mill halts operations, there would be an immediate loss of sales and employment in that industry, plus indirect loss to businesses supported by the employees and operations of the paper mill, particularly the services, retail trade, forestry and construction industries. The loss of approximately 850 jobs at the paper mill would result in a total loss of 4,300 jobs statewide within the first year of the paper mill closing. The loss in employment would also result in the reduction in Texas personal income of approximately \$217 million.

The commission appreciates the receipt of the economic information.

Diamond-Koch supported the change in TDS from 400 to 700 milligrams per liter on Segment 0902, Cedar Bayou Above Tidal.

The commission adopts the revision as proposed.

EPA recommended that an aquatic life use be adopted for Segments 1006 (Houston Ship Channel Tidal) and 1007 (Houston Ship Channel/Buffalo Bayou Tidal), and that the dissolved oxygen criteria be changed from 1.0 to 2.0 mg/L for Segment 1007 and from 2.0 to 3.0 mg/L for Segment 1006.

The commission responds that the existing uses and dissolved oxygen criteria for Segments 1006 and 1007 are based on an EPA-approved use attainability analysis. Furthermore, the EPA approved

waste load evaluation does not indicate that higher dissolved oxygen criteria can be achieved. Therefore, the commission does not agree that reliable data indicates that the dissolved oxygen criteria for Segments 1006 and 1007 should be raised at this time.

LCRA expressed opposition to the increases in chloride, sulfate, and TDS for the majority of the segments in the lower Colorado River. LCRA expressed concern that the proposed revisions do not include segment-specific criteria for Segment 1433 for dissolved minerals and recommend a UAA for the segment.

The commission responds that the LCRA provided data and recommendations for revising some of the proposed dissolved minerals (chloride, sulfate, and TDS) criteria for 14 segments (1402-1408, 1414-1417, 1428, 1429 and 1434) in the Colorado River Basin. LCRA agrees with the proposed revisions for two segments (1409 and 1427). After review of the LCRA data, the commission agrees with some of the LCRA recommendations for changing the proposed criteria and modifies some others. One or more of the dissolved minerals criteria are revised from the proposal and adopted for the following segments: 1402-1408, 1414-1416, 1428, 1429, and 1434. The commission did not propose any change for Segment 1417 or Segment 1433, and therefore, cannot make any changes at this time because the public would not be afforded an adequate comment period. Revision of dissolved mineral criteria for Segment 1417 may be considered during the next revision of the standards. Currently, a TMDL project relating to dissolved minerals is underway for Segment 1411 and associated segments. Results of the TMDL and other data will be used to develop criteria, as appropriate, for these segments, including 1426 and 1433, in future standards revisions.

Odessa provided data on O.H. Ivie Reservoir, Segment 1433; E.V. Spence Reservoir, Segment 1411; Lake J.B. Thomas, Segment 1413; and Moss Creek. The city requested that the commission take this data into consideration in proposing criteria for these water bodies.

The commission did not propose changes for these segments, and therefore will not make the changes at this time because the commission has not fully considered the proposals, and because the public has not been given the opportunity to comment. Currently, a TMDL project relating to dissolved minerals is underway for Segment 1411 and associated segments. Results of the TMDL and other data will be used to develop criteria, as appropriate, for these segments, including 1426 and 1433, in future standards revisions.

Austin commented that it opposed the changes in chloride (Cl), sulfate (SO₄), and TDS criteria for Barton Creek and Onion Creek and that separate historical data should be used to evaluate Barton Creek. The changes are higher than the upper 95th percentile confidence limit above the mean and changing the criteria would suggest that degradation could occur. Data indicates that the increased values are associated with development. As some development impacts are already being observed in Onion Creek, its assessment should evaluate the baseline conditions as defined for antidegradation. If lack of variability in the data provides tighter confidence limits, the upper confidence limit should be implemented as the criteria for that segment rather than a number exceeding it. The city also objected to raising criteria concentrations in streams with Aquifer Protection designated uses. These values exceed those currently found in springs in Barton and Onion creeks. The proposed standards will allow degradation of recharge to an extent that the aquifer protection use may be impaired.

The commission responds that neither the public water supply or aquifer protection uses for Onion or Barton creeks would be affected by the proposed revisions to the dissolved minerals criteria. The criteria are well below secondary constituent levels as specified in §290.113. The commission calculated Cl and SO₄ criteria from data provided by the city on Barton Springs and will revise proposed criteria for Segment 1430, Barton Creek, to 50 mg/L for Cl and SO₄. Commission data on Onion Creek was re-evaluated and stations downstream and upstream of I-35 were pooled into two groups. Based on separate calculations on the two sets of data, the proposed criteria are appropriate for Onion Creek downstream of I-35. A footnote will be added to Appendix A indicating that the aquifer protection reach of the creek will have the following criteria: 50 mg/L for Cl and SO₄, and 400 mg/L for TDS. The commission adopts the proposed revisions as modified.

CRWA objected to the increase in parameters applicable to stream segments in the Guadalupe River Basin (Segments 1804 and 1814) from which they draw water for drinking water.

The commission responds that the proposed criteria for dissolved minerals are well below the commission's secondary constituent levels for drinking water. The proposed criteria are protective of both the high aquatic life use and the public water supply designations for the Segment 1804, and of the exceptional aquatic life use and aquifer protection designations for Segment 1814. As an example, the proposed criteria are substantially below the current federally recommended criterion of 230 mg/L of chloride for chronic protection of freshwater aquatic life. The commission adopts the revisions as proposed.

EPA supported the proposed temperature change for the Comal River, Segment 1811.

The commission appreciates the support of the proposed revision and adopts the revision as proposed.

MWSC objected to increases in Cl, SO₄, and TDS criteria given in Appendix A which are applicable to stream segments in Basin 18 from which they draw water for drinking water. They have a diversion on the San Marcos River four miles below the confluence of the Blanco River. The SMRF opposed the changes because existing historical data indicates that the existing criteria are appropriate. The SMRF expressed concern about a proposed power plant and how the change in criteria and the effect the proposed discharge may have on endangered species. The SMRF also expressed opposition to setting one criteria for the watershed since the source and quality of the various rivers in the watershed differ.

The commission notes that no changes were proposed for Segment 1808-Lower San Marcos River where MWSC will divert water, and that the criteria proposed for chloride for Segment 1814-Upper San Marcos River is lower than the existing criteria for Segment 1808. The proposed criteria for sulfate and TDS for Segment 1814 are identical to the existing criteria for Segment 1808. The proposed criteria for dissolved minerals are also well below the commission's secondary constituent levels for drinking water. The commission notes that current federal guidance contained in the EPA document entitled *Ambient Water Quality Criteria for Chloride-1988* recommends 230 mg/L of chloride for chronic protection of freshwater aquatic life. Therefore, the proposed criteria are protective of both the exceptional aquatic life use and the aquifer protection designations for Segment 1814. The executive director has instituted procedures to carefully scrutinize discharges to waters that contain endangered species and can require additional control measures, as necessary, to protect endangered species. The commission adopts the revisions as proposed.

SAWS requested that the public water supply designation for Segment 1906, Leon Creek, be removed since there are no drinking water intakes in this segment. They stated that the use was assigned when Applewhite Reservoir was proposed to be built and since the reservoir was not built, the use is not necessary.

The commission did not propose a change to the designated public water supply use for Segment 1906; therefore, the change will not be made at this time because the commission has not evaluated this change and because the public has not been given the opportunity to comment. The comment may be considered in subsequent revisions to the standards. It should be noted that the current designation for public water supply does not apply to the lower reaches of the segment.

SAWS recommended that a notation be added that the public water supply and aquifer protection use designations apply to those portions of Segment 1910 which are upstream of the southern boundary of the Edwards Aquifer Recharge Zone.

The commission did not propose a change to the designated public water supply use for Segment 1910 - Salado Creek; therefore, the change will not be made at this time because the commission has not evaluated this change and because the public has not been given the opportunity to comment. The comment may be considered in subsequent revisions to the standards. The aquifer protection use is limited to that portion of the segment that can potentially affect the Edwards Aquifer.

Corpus Christi supported the change to Segment 2101, Nueces Tidal, from exceptional aquatic life use to high aquatic life use. TCPS, TCONR, and PIC expressed opposition to the revision. F&A and two individuals opposed the changes to Segment 2101, particularly because the EPA Office of Pollution has

ranked Texas as number one in 1) pollution released by manufacturing plants and 2) pollution by industrial plants in violation of the Texas Clean Air Act. TPWD also opposed the revision from exceptional to high aquatic life use for Segment 2101 and provided details in support of their opposition. NWF expressed opposition to the change in aquatic life use.

The proposed change in the aquatic life use designation for Segment 2101 - Nueces River Tidal is based on a use attainability analysis which compared the physical and biological characteristics of the Nueces River to four other tidal segments. The weight of evidence presented indicates that the appropriate classification of the Nueces River Tidal is high aquatic life use. A river can be ecologically unique and still have a high aquatic life use classification. A review of the TPWD list of ecologically unique rivers and streams reveals that many of the streams so listed have a high aquatic life use designation and some even have an intermediate aquatic life use designation. EPA considers the commission's high aquatic life use designation as meeting the §101(a) goals of the federal CWA. The commission adopts the revision to Segment 2101 as proposed.

The USIBWC opposed the changes in Cl, SO₄, and TDS for Segment 2303, Falcon Reservoir and stated that the data indicates that the average concentrations of these constituents exceed the current criteria. The USIBWC also recommended that additional data be gathered to address the increasing salinity gradient and account for drought conditions.

The commission responds that the proposed criteria for dissolved minerals are well below the commission's secondary constituent levels for drinking water. The proposed criteria are protective of the high aquatic life use and the public water supply designations for Segment 2303. As an

example, the proposed criteria are below the current federally recommended criterion of 230 mg/L of chloride for chronic protection of freshwater aquatic life. The commission adopts the revisions as proposed.

EPA supported the addition of public drinking water supply in Segment 2308, Rio Grande Below International Dam. El Paso PSB and USIBWC expressed opposition to adding a public drinking supply use to the segment.

The use was proposed because the commission had information that a drinking water supply was established on the Riverside Diversion Canal which diverts water from Segment 2308. Based on information provided by the USIBWC and El Paso PSB, the commission concludes that this information is no longer accurate. Since the completion of the Rio Grande American Canal Extension in 1999, the drinking water supply is on the American Canal which obtains its water from Segment 2314. Segment 2314 is already designated as a public water supply. The proposed addition of a public water supply to Segment 2308 is withdrawn.

USIBWC is opposed to increasing the Cl and SO₄ criteria for Segment 2309, Devils River. They stated that the five-year averages are below the current criteria and that there have been no exceedances of these criteria in the five years from 1993 to 1998.

The commission responds that the proposed criteria for dissolved minerals are well below the commission's secondary constituent levels for drinking water. The proposed criteria are protective of both the exceptional aquatic life use and the public water supply designations for Segment 2309.

As an example, the proposed criteria are substantially below the current federally recommended criterion of 230 mg/L of chloride for chronic protection of freshwater aquatic life. The commission adopts the revisions as proposed.

USIBWC expressed opposition to changing the Cl, SO₄, and TDS criteria for Segment 2310, Lower Pecos River until further data collection is performed. The data indicates a decreasing trend in average concentrations of Cl, SO₄, and TDS in the river.

The commission responds that Segment 2310 exhibits a decreasing trend of dissolved minerals from the upstream portion of the segment to the downstream portion due to dilution flows from springs and tributaries. The commission data base contains records from the downstream portion of the segment since 1968; however, the upstream portion of the segment has been sampled only since the mid-1980s. The segment boundary was extended upstream in the 1995 water quality standards revision but the criteria were not revised to account for the higher concentrations of dissolved minerals that occur in the upper end of the segment. The proposed criteria are adopted to reflect the addition of the newer data from the upstream portion of the segment.

USIBWC supported the lowering of criteria for Cl, SO₄, and TDS for Segment 2312, Red Bluff Reservoir.

The commission adopts the revisions as proposed.

USIBWC expressed opposition to changing the Cl and SO₄ criteria for Segment 2313, San Felipe Creek because the averages of available data are below the current criteria which are adequate. The USIBWC supported the lowering of TDS criteria.

The commission responds that the proposed criteria for dissolved minerals are well below the commission's secondary constituent levels for drinking water. The proposed criteria are protective of both the high aquatic life use and the public water supply designations for Segment 2313. As an example, the proposed criteria are substantially below the current federally recommended criterion of 230 mg/L of chloride for chronic protection of freshwater aquatic life. The commission adopts the revisions as proposed.

SECTION 307.10 - APPENDIX B

Eastman, GHP, and TCC suggested that Appendix B should be removed from the rule and placed in the implementation procedures. They noted that the low-flow criteria are updated by the commission periodically, and therefore, the flow data used in permit actions might not correspond with those in the rule.

The commission acknowledges that the values in Appendix B represent default criteria, in that they apply until better information becomes available. They are included in the rules so that there will be a regulatory default value in effect for all segments for which they remain pertinent.

One commenter noted that some gage numbers in Appendix B are identified as being in Segment 1242 when they should be in new Segments 1256 or 1257.

The commission appreciates the comment. The segment numbers in Appendix B were not changed inadvertently. The United States Geological Survey (USGS) gage number 08093100 and 08092600 are changed from Segment 1242 to new Segment 1257. Also, USGS gage number 08030500 is changed from Segment 0503 to new Segment 0502. The commission adopts the proposed revisions as modified.

SECTION 307.10 - APPENDIX C

EPA accepted the changes to Segments 0501, 0502, 0503, 1242, 1256, 1257, 1802, and 1803 and stated that other changes to clarify boundaries of 18 segments were also acceptable. EPA commented that the UAAs for segments 0230 and 0615 are under review.

The commission adopts the revisions as proposed.

SAWS pointed out that the current description for Medio Creek, Segment 1912, was in error because the stream actually originates several miles to the northwest instead of a point only 0.6 mile upstream of IH-35.

It is typical for the commission to classify only portions of streams, as it has in this situation. The TNRCC is not proposing a change to the description for Segment 1912 - Medio Creek; therefore, the change will not be made at this time because the commission hasn't fully evaluated it, and because the public has not had an opportunity to comment. The comment may be considered in subsequent revisions to the standards.

SECTION 307.10 - APPENDIX D

SC-Houston requested that the upstream boundary for Harmon Creek (0803) be applicable to the boundary line of Sam Houston National Forest before the confluence with East Fork Creek. They also requested that the boundary for Tarkington Bayou (1002) be extended beyond the City of Cleveland to include the Sam Houston National Forest to the headwaters of Tarkington Bayou.

The commission responds that requested extensions of the designated boundaries for Tarkington Bayou and Harmon Creek would require additional sampling and analysis. A presumed high aquatic life use in accordance with §307.4 applies to perennial portions of the streams not otherwise designated in Appendix D. The commission adopts the revision as proposed.

SCLS, TCONR, and an individual opposed all of the proposed revisions that are less than a high aquatic life use with a 5.0 mg/L dissolved oxygen criteria. They stated that the revisions just define away the problem and want the highest level of protection, instead.

The commission responds that all of the proposed revisions with aquatic life uses less than high for perennial streams in Appendix D are based on use attainability analyses conducted in accordance with EPA regulations (40 CFR §131.10(g)). The revisions are adopted as modified as noted in the response to EPA's comments.

Motiva requested that the aquatic life use for Alligator Bayou (Main Canal D in Segment 0702) be lowered to limited. They also request that Alligator Bayou be listed as a stand-alone water body with the following

description: perennial canal from confluence with JCDD 7 Main Canal A to north of Savanna Avenue at the Port Arthur city limits.

The commission responds that the use attainability analyses conducted on the Jefferson County Drainage District Canals support an intermediate aquatic life use as a reasonably attainable use with a 3.0 mg/L 24-hour average dissolved oxygen concentration. The commission adopts the revision as proposed.

EPA submitted comments noting which use attainability analyses they have reviewed and those which they have not yet completed reviewing. They also noted that there were a few proposed revisions for which they have not yet received a use attainability analysis from the commission and they also noted that a use attainability analysis for Spring Branch in Segment 0801 was reviewed but is not in the proposed revision.

The commission appreciates EPA's review of the numerous use attainability analyses that have been submitted by the commission. The commission will submit the outstanding use attainability analyses prior to submitting an adopted standards package to EPA for approval. The revision for Spring Branch, an unclassified tributary within the drainage basin of Segment 0801, was inadvertently left out of the proposed revision to the water quality standards. It will be included in the next revision to the standards. After discussions with EPA and further review, the commission changes the proposed aquatic life use for East Fork White Oak Creek in Segment 1004 from limited to intermediate. Also, as the result of discussions with EPA, the description of where the proposed aquatic life use for Box Creek applies in Segment 0804 is changed from the ". . .confluence of the Trinity River. . ." to the ". . .confluence of Elkhart Creek. . ." to limit the linear extent to which the

intermediate use applies. Also, the commission proposed the addition of Wards Creek in segment 0505; however, the proposal should have only been a modification of the site description for the existing Wards Creek. Therefore, the revision for Wards Creek affects only the site description rather than the addition of a new stream. The commission withdraws the proposed revision to the site description for the existing Prairie Creek in segment 0606 since the revision conflicts with the site description for the new proposed reach of Prairie Creek. The commission adopts the proposed revisions as modified.

TCC supported the proposed revisions to Appendix D.

The commission adopts the revisions as modified.

SECTION 307.10 - APPENDIX E

DOW and TCC expressed support of the proposed site-specific toxic criteria and the corresponding water-effects ratios in Appendix E in §307.10.

The commission responds that these proposed changes are adopted, with the noted clarifications and corrections.

Eastman noted that the description for the proposed site-specific criterion for copper for Segment 0505, Sabine River above Toledo Bend Reservoir, was incorrectly attributed to an unnamed tributary in Appendix E in §307.10. The site-description should define the portion of the Sabine River where this criterion should apply.

The commission responds that the site description for the proposed site-specific standard for copper for Segment 505 is corrected as requested in the adopted revisions.

TCONR, seven individuals, and a number of individuals who signed a petition opposed the change in site-specific aluminum criterion for Segments 0611 and 0615 of the Angelina River in Appendix E in §307.10. One of the individuals opposed any resulting change in aluminum permit limits for Donohue Industries, Inc., TPDES Number 00368. One commenter supported the site-specific aluminum criterion for Segments 0611 and 0615.

The commission responds that the proposed site-specific criterion for aluminum was supported by substantial instream testing of toxicity to aluminum in this area. However, additional evaluation of this data has indicated that the pH in some of the laboratory toxicity tests using synthetic lab water was outside the acceptable range. Therefore, further toxicity testing and determination of the appropriate “water-effects ratio” is needed to complete a site-specific criterion for aluminum for Segment 0611, Segment 0615 or Papermill Creek; and this proposed change is not adopted by the commission. The commission notes that future incorporation of site-specific toxic criteria based on water-effects ratios do not require prior revision of Appendix E in §307.10 of the water quality standards. If adequate information is developed for a site-specific criterion for aluminum in this area, it will be included in public notices about affected permit applications. Additional responses on incorporating site-specific standards for metals are provided in this preamble in the discussion concerning §307.6(c)(9).

GCA, EHCMA, and Arstech supported the site-specific criteria for copper in the Houston Ship Channel (Segments 1005, 1006, and 1007) and San Jacinto Bay (Segment 2427) in Appendix E in §307.10.

The commission responds that the proposed site-specific criteria for copper for these segments, which were supported by extensive sampling and toxicity testing throughout the Houston Ship Channel complex, are adopted as proposed. In addition, the commission includes Segments 1001 and 1013 in the segments listed since data was collected in these segments also.

In addition to these responses to specific comments concerning §307.10, the commission corrects several sections of Chapter 307 to refer to site-specific standards in Appendices A, D, and E, rather than to site-specific standards only in Appendix A. The commission also incorporates changes in Appendix E based on the EPA's review of the studies to set site-specific standards for selenium and to set water-effects ratios (WER). The site specific standard for selenium has been changed from 220 to 219 based on a rounding error in the original publication that provided information on the standard. For Segment 0501, the WER was changed to 1.9. The results of one of the test series greatly exceeded the others and was deleted. Segment 0505 WER was changed to 6.7. Water for the first test series was collected when the Sabine River flow was 81.6 times greater than the 7Q2 flow. The data from this series was deleted. Segments 1001, 1005, 1006, 1007, 1013, and 2427 WER changed to 1.8 when it was recalculated after removing data from samples that were held too long before testing commenced. Footnote 5, which is now 6, was never referenced in the table, but applies to Segment 1201.

STATUTORY AUTHORITY

These amendments are adopted under the TWC, §26.023, which provides the commission with the authority to make rules setting water quality standards for all waters in the state; §5.103, which authorizes the commission to adopt any rules necessary to carry out its powers and duties under the TWC and other laws of this state; and §5.105, which authorizes the commission to establish and approve all general policy by rule.

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

§307.2. Description of Standards.

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

(1) Section 307.1 of this title (relating to General Policy Statement) contains the general standards policy of the commission.

(2) This section lists the major sections of the standards, defines basin classification categories, describes justifications for standards modifications, and provides the effective dates of the rules.

(3) Section 307.3 of this title (relating to Definitions and Abbreviations) defines terms and abbreviations used in the standards.

(4) Section 307.4 of this title (relating to General Criteria) lists the general criteria, which are applicable to all surface waters of the state unless specifically excepted in §307.8 of this title (relating to Application of Standards) or §307.9 of this title (relating to Determination of Standards Attainment).

(5) Section 307.5 of this title (relating to Antidegradation) describes the antidegradation policy and implementation procedures.

(6) Section 307.6 of this title (relating to Toxic Materials) establishes criteria and control procedures for specific toxic substances and total toxicity.

(7) Section 307.7 of this title (relating to Site-specific Uses and Criteria) defines appropriate water uses and supporting criteria for site-specific standards.

(8) Section 307.8 of this title (relating to Application of Standards) sets forth conditions under which portions of the standards do not apply--such as in mixing zones or below critical low-flows.

(9) Section 307.9 of this title (relating to Determination of Standards Attainment) describes sampling and analytical procedures to determine standards attainment.

(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 (Appendix D), and site-specific criteria that may be derived for any water in the state (Appendix E). Specific appendices are as follows:

(A) Appendix A - Water Uses and Numerical Criteria

(B) Appendix B - Low-Flow Criteria

(C) Appendix C - Segment Descriptions

(D) Appendix D - Site-specific Receiving Water Assessments; and

(E) Appendix E - Site-specific Criteria.

(b) Applicability. The Texas Surface Water Quality Standards apply to surface waters in the state-- including wetlands.

(c) Classification of surface waters. The major surface waters of the state are classified as segments for purposes of water quality management and designation of site-specific standards. Classified segments are aggregated by basin, and basins are categorized as follows:

(1) River basin waters. Surface inland waters comprising the major rivers, their tributaries, including listed impounded waters, and the tidal portion of rivers to the extent that they are confined in channels.

(2) Coastal basin waters. Surface inland waters, including listed impounded waters but exclusive of paragraph (1) of this subsection, discharging, flowing, or otherwise communicating with bays or the gulf, including the tidal portion of streams to the extent that they are confined in channels.

(3) Bay waters. All tidal waters, exclusive of those included in river basin waters, coastal basin waters, and gulf waters.

(4) Gulf waters. Waters which are not included in or do not form a part of any bay or estuary but which are a part of the open waters of the Gulf of Mexico to the limit of the state's jurisdiction.

(d) Modification of standards.

(1) The commission reserves the right to amend these standards following the completion of special studies.

(2) Any errors in water quality standards resulting from clerical errors or errors in data may be corrected by the commission through amendment of the affected standards. Water quality standards not affected by such clerical errors or errors in data remain valid until changed by the commission.

(3) The narrative provisions, designated uses, and numerical criteria of the Texas Surface Water Quality Standards may be amended for a specific water body 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.

(4) Factors which may justify the development of site-specific standards are described in §§307.4, 307.6, 307.7, and 307.8 of this title.

(5) Temporary variance. When scientific information indicates that a site-specific standards amendment is justified, the commission may allow a corresponding temporary variance to the water quality standards in a permit for a discharge of wastewater.

(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 a public notice during the permit application process. An opportunity for public comment will be provided, 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 protect existing uses and 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 approved by the commission only after a site-specific study that supports a standards change has been completed and the commission agrees the completed study supports a change in the applicable standard(s).

(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) Implementation procedures. Provisions for implementing the water quality standards are described in a document entitled *Procedures to Implement the Texas Surface Water Quality Standards*.

(f) Permit schedules to meet standards. Upon permit amendment or permit renewal, the executive director or commission, as appropriate, may establish interim effluent limitations to allow a permittee time to modify effluent quality in order to attain final effluent limitations. The duration of any interim effluent limitations 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.

(g) Temporary standards. Where a criterion is not attained and cannot be attained for one or more of the reasons listed in 40 Code of Federal Regulations (CFR) §131.10(g), then a temporary standard for specific water bodies may be adopted in §307.10 of this title 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. Specific reasons and additional procedures for justifying a temporary standard are provided in the standards implementation procedures. 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.

(h) Effective date of standards. Except as provided in 40 CFR §131.21 (EPA review and approval of water quality standards), these rules shall become effective 20 days after the date on which they are filed in the office of the secretary of state. As to actions covered by 40 CFR §131.21, the rules shall become effective upon approval by EPA.

(i) Effect of conflict or invalidity of rule.

(1) If any provision of this chapter or its application to any person or circumstances is held invalid, the invalidity does not affect other provisions or applications of the provisions contained in this chapter which can be given effect without the invalid provision or application, and to this end the provisions of this chapter are severable.

(2) To the extent of any irreconcilable conflict between provisions of this chapter and other rules of the commission, the provisions of this chapter shall supersede.

§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) **Acute toxicity** - Toxicity which exerts a stimulus severe enough to rapidly induce an effect. The duration of exposure applicable to acute toxicity is typically 96 hours or less. Tests of total toxicity normally use lethality as the measure of acute impacts. (Direct thermal impacts are excluded from definitions of toxicity.)

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

(3) **Attainable use** - A use which can be reasonably achieved by a water body in accordance with its physical, biological, and chemical characteristics whether it is currently meeting that use or not. Guidelines for the determination and review of attainable uses are provided in the standards implementation procedures. The designated use, existing use, or presumed use of a water body may not necessarily be the attainable use.

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

(5) **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) **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.

(7) **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 and which is absorbed directly from the water. 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 in an environment relatively unaffected by pollution.

(10) **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 the most common chronic toxicity test is 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) **Contact recreation** - Recreational activities involving a significant risk of ingestion of water, including wading by children, swimming, water skiing, diving, and surfing.

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

(14) **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.

(15) **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.

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

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

(18) ***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 the potential presence of pathogens.

(19) **Effluent** - Wastewater discharged from any point source prior to entering a water body.

(20) **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 the potential presence of pathogens.

(21) **Epilimnion** - The upper mixed layer of a lake (including impoundments, ponds, and reservoirs).

(22) **Existing use** - A use which is currently being supported by a specific water body or which was attained on or after November 28, 1975.

(23) **Fecal coliform** - A 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 the potential presence of pathogens.

(24) **Freshwaters** - Inland waters which exhibit no measurable elevation changes due to normal tides.

(25) **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.

(26) **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.

(27) **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.

(28) **Industrial cooling impoundment** - An impoundment 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.

(29) **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.

(30) **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.

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

(32) **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 136, Appendix B.

(33) **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 will establish general minimum analytical levels that will be applicable when information on matrix-specific minimum analytical levels is unavailable.

(34) **Mixing zone** - The area contiguous to a discharge where mixing with receiving waters takes place and where specified criteria, as listed in §307.8(b)(1) of this title (relating to Application of Standards), can be exceeded. Acute toxicity to aquatic organisms is not allowed in a mixing zone, and chronic toxicity to aquatic organisms is not allowed beyond a mixing zone.

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

(36) **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.

(37) **Oyster waters** - Waters producing edible species of clams, oysters, or mussels.

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

(39) **Pollution** - The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property or to the public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

(40) **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.

(41) **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.

(42) **Public drinking water supply** - A water body designated to provide water to a public water system as defined in Chapter 290 of this title (relating to Public Drinking Water).

(43) **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.

(44) **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.

(45) **Seagrass propagation** - A water-quality-related existing use which applies to saltwater with significant stands of submerged seagrass.

(46) **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 agency.

Classified segments may include streams, rivers, bays, estuaries, wetlands, lakes, or reservoirs.

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

(48) **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.

(49) **Shellfish** - Clams, oysters, mussels, crabs, crayfish, lobsters, and shrimp.

(50) **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 provisions to protect aquatic life applies to any water body in the state whether an aquatic life use is assigned or not. 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.

(51) **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.

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

(53) **Standards implementation procedures** - Procedures entitled *Procedures to Implement the Texas Surface Water Quality Standards*, which are adopted by the commission and approved by EPA as part of the State Continuing Planning Process.

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

(55) **Storm water discharge** - A point source discharge that 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 agency.

(56) **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.

(57) **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 (from the mean high water mark (MHW) out 10.36 miles into the Gulf), 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 water-courses 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 in the state.

(58) **Sustainable Fisheries** - Descriptive of water bodies 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 which are presumed to have sustainable fisheries include all designated segments listed in Appendix A unless specifically exempted.

(59) **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.

(60) **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.

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

(62) **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*.

(63) **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*.

(64) **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.

(65) **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.

(66) **Toxicity biomonitoring** - The process or act of determining total toxicity. Documents which describe procedures for toxicity biomonitoring are cited in §307.6 of this title (relating to Toxic Materials). Also referred to simply as biomonitoring.

(67) **Water-effects ratio** - 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 laboratory dilution water. The water-effects ratio can be used to establish site-specific acute and chronic criteria to protect aquatic life. 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).

(68) **Water quality management program** - The agency'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.).

(69) **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.

(70) **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.

(71) **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.

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

- (1) AP - aquifer protection.
- (2) BMP - best management practices.
- (3) AS - agricultural water supply.
- (4) CASRN - Chemical Abstracts Service Registry number.
- (5) CFR - Code of Federal Regulations.
- (6) Cl^{-1} - chloride.
- (7) CR - contact recreation.
- (8) DO - dissolved oxygen.
- (9) E - exceptional aquatic life use.

- (10) EPA - United States Environmental Protection Agency.
- (11) degrees F - Degree(s) Fahrenheit.
- (12) ft³/s - cubic feet per second.
- (13) H - high aquatic life use.
- (14) I - intermediate aquatic life use.
- (15) IS - industrial water supply.
- (16) L - limited aquatic life use.
- (17) MCL - maximum contaminant level (for public drinking water supplies).
- (18) mg/L - milligrams per liter.
- (19) ml - milliliter.
- (20) MS4 - municipal separate storm sewer system.
- (21) N - navigation.

(22) NCR - noncontact recreation.

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

(24) O - oyster waters.

(25) PS - public water supply.

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

(27) SO_4^{-2} - sulfate.

(28) TDS - total dissolved solids.

(29) TMDL - total maximum daily load.

(30) TPDES - Texas Pollutant Discharge Elimination System.

(31) TSS - total suspended solids.

(32) USFDA - United States Food and Drug Administration.

(33) USGS - United States Geological Survey.

(34) WF - waterfowl habitat.

(35) WQM - water quality management.

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

(37) ZID - zone of initial dilution.

§307.4. General Criteria.

(a) Application. The general criteria set forth in this section apply to surface water in the state and specifically apply to substances attributed to waste discharges or the activities of man. General criteria do not apply to those instances in which surface water, as a result of natural phenomena, exhibit characteristics beyond the limits established by this section. General criteria are superseded by specific exemptions stated in this section or in §307.8 of this title (relating to the Application of Standards), or by site-specific water quality standards for classified segments. Provisions of the general criteria remain in effect in mixing zones or below critical low-flow conditions unless specifically exempted in §307.8 of this title.

(b) Aesthetic parameters.

(1) Concentrations of taste and odor producing substances shall not interfere with the production of potable water by reasonable water treatment methods, impart unpalatable flavor to food fish including shellfish, result in offensive odors arising from the waters, or otherwise interfere with the reasonable use of the water in the state.

(2) Surface water shall be essentially free of floating debris and suspended solids that are conducive to producing adverse responses in aquatic organisms or putrescible sludge deposits or sediment layers which adversely affect benthic biota or any lawful uses.

(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 the Federal Clean Water Act.

(4) Surface waters shall be maintained in an aesthetically attractive condition.

(5) Waste discharges shall not cause substantial and persistent changes from ambient conditions of turbidity or color.

(6) There shall be no foaming or frothing of a persistent nature.

(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.

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

(d) Toxic substances. 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. Additional requirements and criteria for toxic substances 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 except as specified in §307.8(a)(2) of this title. 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 (l) 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 for applying toxic criteria.

(e) Nutrients. 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.

(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.

(2) Criteria for chlorides, sulfates, and total dissolved solids for classified freshwater segments are specified in Appendix A of §307.10 of this title.

(3) Salinity gradients in estuaries will be maintained to support attainable estuarine dependent aquatic life uses. 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. 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.

(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).

(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.

(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 protected 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. Higher uses will be protected 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 aquatic life uses. Procedures to protect habitat in permits for dredge and fill activities are specified in Federal Clean Water Act, §404 and in Chapter 279 of this title (relating to Water Quality Certification).

(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. Contact recreation is presumed as a use for all water bodies except where listed otherwise for specific water bodies in Appendix A of §307.10 of this title.

(k) 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) 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 or commission which affects a particular unclassified water body, the characteristics of the affected water body will be reviewed by the agency 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 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 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. 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 pollution of 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 the antidegradation policy of the agency.

(1) Tier 1. Existing uses and water quality sufficient to protect those 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 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 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 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 which cause pollution that are authorized by the Texas Water Code, the Federal Clean Water Act, or other applicable laws will not lower water quality to the extent that the Texas Surface Water Quality Standards are not attained.

(5) 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 of antidegradation provisions shall not preclude the commission or executive director 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.

(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 pollution of 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.

(A) Tier 1 reviews will ensure that water quality is sufficiently maintained so that existing uses are protected. All pollution which could cause an impairment of water quality is 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) Tier 2 reviews apply to all pollution 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. For dissolved oxygen, analyses of degradation under Tier 2 will utilize the same critical conditions as are used to protect instream criteria. 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 131) defines baseline conditions for determinations of degradation.

(C) Tier 3 reviews apply to all pollution which could cause degradation of outstanding national resource waters. Outstanding national resource waters are those specifically designated in this chapter.

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

(E) Evidence can be introduced in public hearings, or through the public comment process, 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 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.

§307.6. Toxic Materials.

(a) Application. Standards and procedures set forth in this section shall be applied in accordance with §307.8 of this title (relating to Application of Standards) and §307.9 of this title (relating to Determination of Standards Attainment).

(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.

(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 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.

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

TABLE 1
 Criteria in Water for Specific Toxic Materials -
 AQUATIC LIFE PROTECTION
 (All values are listed or calculated in micrograms per liter)
 (Hardness concentrations are input as milligrams per liter)

Parameter	CASRN	Freshwater Acute Criteria	Freshwater Chronic Criteria	Saltwater Acute Criteria	Saltwater Chronic Criteria
Aldrin	309-00-2	3.0	---	1.3	---
Aluminum (d)	7429-90-5	991w	---	---	---
Arsenic (d)	7440-38-2	360w	190w	149w	78w
Cadmium (d)	7440-43-9	$0.973w_e^{(1.128(\ln(\text{hardness}))-1.6774)}$	$0.909w_e^{(0.7852(\ln(\text{hardness}))-3.490)}$	45.4w	10w
Carbaryl	63-25-2	2.0	---	613	---
Chlordane	57-74-9	2.4	0.004	0.09	0.004
Chlorpyrifos	2921-88-2	0.083	0.041	0.011	0.006
Chromium (Tri) (d)	16065-83-1	$0.316w_e^{(0.8190(\ln(\text{hardness}))+3.688)}$	$0.860w_e^{(0.8190(\ln(\text{hardness}))+1.561)}$	---	---
Chromium (Hex) (d)	18540-29-9	15.7w	10.6w	1,090w	49.6w
Copper (d)*	7440-50-8	$0.960w_e^{(0.9422(\ln(\text{hardness}))-1.3844)}$	$0.960w_e^{(0.8545(\ln(\text{hardness}))-1.386)}$	13.5w	3.6w
Cyanide † (free)	57-12-5	45.8	10.7	5.6	5.6
4,4'- DDT	50-29-3	1.1	0.001	0.13	0.001
Demeton	8065-48-3	---	0.1	---	0.1
Dicofol	115-32-2	59.3	19.8	---	---
Dieldrin	60-57-1	2.5	0.002	0.71	0.002