UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

AUG 2 4 2012

Ms. L'Oreal Stepney, P.E., Deputy Director
Office of Water (MC-158)
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

Dear Ms. Stepney:

The Environmental Protection Agency (EPA or the Agency) has completed its review of several new and revised provisions in the *Texas Surface Water Quality Standards* (Texas WQS). These standards were adopted by the Texas Commission on Environmental Quality (TCEQ), on June 30, 2010, and received by EPA for approval on August 9, 2010. This is the second letter concerning our review of the standards, following the initial letter dated June 29, 2011. This action includes new and revised provisions in §307.4, §307.6, §307.7, §307.9 and Appendices A, C, and D of the Texas WQS, as specified in the enclosure.

I am pleased to inform you that the EPA is approving the provisions as documented in Parts I and II of the enclosure to this letter, pursuant to section 303(c) of the Clean Water Act (CWA) and the implementing regulation at 40 CFR Part 131. These provisions include:

- the provision at §307.4(j)(3) Assigning recreational uses to an unclassified water body;
- §307.6 (c) and Table 1 – Criteria in Water for Specific Toxic Materials (Aquatic Life Protection)
- portions of the provision at §307.9(f);
- revisions in Appendix A, Appendix C and Appendix D; and,
- numerous provisions with editorial changes in §307.4, §307.6, §307.7 and Appendix E.

As noted in Part II of the enclosure, EPA is approving specific revisions in §307.6, Appendix A, Appendix C and Appendix D subject to the outcome of consultation with the U.S. Fish and Wildlife Service under §7(a)(2) of the Endangered Species Act.

As discussed further below and in Part III of the enclosure to this letter, EPA is disapproving the following items:

- portions of the provision at §307.9(f). Biological Integrity;
- segment 0305 – North Sulphur River (Appendix A): assessment of the benthic macroinvertebrate community with the limited aquatic life use;
- segment 2485 – Oso Bay and segment 2491 – Laguna Madre (Appendix A): site-specific dissolved oxygen criteria; and,
- Lavaca River (Appendix D): dissolved oxygen criteria values in footnote 10.

Under 40 CFR §131.21(e), new and revised standards are not effective for CWA purposes until approved by EPA. EPA is disapproving language under §307.9(f) which defers listing of waters not meeting the criteria associated with the presumed high aquatic life use until a use attainability analysis can be completed. The regulation at 40 CFR Part 130 makes no distinction as to the appropriateness of applicable standards or how they were derived, and does not allow for the option to defer listing of impaired waters. The State can resolve this disapproval by removing the language from the Texas WQS.

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Regarding the disapproval of the limited aquatic life use for the benthic community in segment 0305 – North Sulphur River, EPA is approving the intermediate aquatic life use as applicable for both the fish and benthic macroinvertebrate communities. The State can resolve this disapproval by removing footnote 2 from Appendix A of the Texas WQS.

As a result of EPA's disapproval of the site-specific disolved oxygen criteria for segment 2485 – Oso Bay and segment 2491 – Laguna Madre, the dissolved oxygen criteria of 5.0 mg/L (24-hour average) and 4.0 mg/L (24-hour minimum) in the 2000 Texas WQS are applicable for all CWA purposes. The State can resolve this disapproval by removing the site-specific criteria from Appendix A of the Texas WQS, or by developing site-specific criteria based on additional justification for these segments (or portions of the water bodies).

Finally, as a result of EPA's disapproval of footnote 10 of Appendix D (Lavaca River), the criteria of 5.0 mg/L (24-hour average) and 3.0 mg/L (24-hour minimum) continue to apply for CWA purposes during the period of March 15th through October 15th. Texas can resolve this disapproval action by removing footnote 10 in Appendix D or by adopting alternative seasonal criteria, such as those values previously established in the Texas WQS for intermittent streams with perennial pools of 3.0 mg/l (24-average) and 2.0 mg/l (24-hour minimum).

The Agency determined that several revisions in the 2010 Texas WQS are implementation provisions, rather than water quality standards under CWA §303(c), and, therefore, are not subject to EPA review. These revisions are identified in Part IV of the enclosure.

EPA has previously stated that it is taking no action on the definition of "Surface water in the state" in §307.3(a)(66), regarding the reference to §26.001 of the Texas Water Code for the area 10.36 miles off-shore into the Gulf of Mexico. Under the CWA, Texas does not have jurisdiction to establish water quality standards more than three nautical miles from the coast. Therefore, EPA's approval action on the items in Parts I and II of the enclosure recognizes the State's authority under the CWA to include waters extending offshore three nautical miles in the Gulf of Mexico, but does not extend past that point. In addition, EPA's approval action also does not include the application of the Texas WQS to the portions of the Red River and Lake Texoma that are located within the State of Oklahoma. EPA is also taking no action on the Texas WQS for those waters or portions of waters located in Indian Country.

I would like to commend the TCEQ staff for its commitment in completing the task of reviewing and revising the State's water quality standards. EPA will take separate action on the remaining new and revised provisions in §307.4; §307.6; §307.7; §307.8; §307.9; and Appendices A, C, D and F of the 2010 Texas WQS. If you have any questions or concerns, please contact me at (214) 665-7101, or have your staff contact Diane Evans at (214) 665-6677.

Sincerely,

for William K. Honker, P.E.
Acting Director
Water Quality Protection Division

Enclosure

cc: Kelly Holligan, Director, TCEQ - Water Quality Planning Division (MC-203)

EPA Review of 2010 *Texas Surface Water Quality Standards* (Texas WQS)

EPA's action addresses the revisions to water quality standards (WQS) adopted by the Texas Commission on Environmental Quality (TCEQ) in June 2010 and submitted to EPA in August 2010. This enclosure provides a summary of the revisions and the action taken by EPA. The discussion below covers the three types of actions for specific provisions: I. Revisions that are approved for purposes of Clean Water Act (CWA) §303(c), as found on pages 1-4 of this enclosure); II. Revisions that are approved for purposes of CWA §303(c), subject to completion of consultation under the Endangered Species Act (ESA), as found on pages 5-7; III. Revisions that are disapproved for CWA purposes, as found on pages 7-12; and, IV. Revisions that are not WQS under the CWA, as found on pages 12-13.

I. REVISIONS THAT EPA IS APPROVING

EPA has concluded that approval of certain revisions either will have no effect on listed or proposed endangered or threatened species, or are otherwise not subject to ESA consultation. For the revisions discussed below in Part I. of this enclosure, ESA consultation is not required. EPA has previously completed consultation under the ESA or has made a finding of no effect on federally-listed species and critical habitat.

§307.4. General Criteria

§307.4(h) . Aquatic life uses and dissolved oxygen. Under paragraph (3), language was revised to correct a previously disapproved provision related to the intended use of Table 4 in §307.7(b)(3)(A) for dissolved oxygen criteria in perennial streams in northeast and southeast Texas. Under paragraph (4), language was revised for consistency with the inclusion of the minimal aquatic life use in §307.7(b)(3). Editorial changes, which do not alter the intent or implementation of the Texas WQS, were made in paragraphs (1) and (2) and are also approved.

§307.4(j)(3)(A)-(C). Assigning recreational uses to an unclassified water body. Provisions were added to incorporate the results of recreational use attainability analyses in item (A). Under item (B), the public participation process may be conducted through an action for a Texas Pollutant Discharge Elimination System (TPDES) permit, a revision of the list of impaired water bodies under CWA §303(d), or the development of a total maximum daily load. The procedures in item (B) only apply to a revision from a presumed primary contact recreation use to a secondary contact recreation 1 use in an unclassified water body. A public meeting will be held and a minimum of 45 days will be provided for public comment. As specified in item (C) Any revisions to recreational uses in classified water bodies, or designations of a secondary contact recreation 2 use or noncontact recreation use in an unclassified water body, will be conducted under a revision to the Texas WQS regulation. EPA finds that processes contained in the above provisions meet the intent of the federal regulation at 40 CFR Part 25 and Part 131. EPA will review documentation on public participation completed for any revisions of the Texas WQS conducted under this provision.

Editorial changes, which do not alter the intent or implementation of the Texas WQS, were made in provisions under §307.4(a), (b), (c), (d), (g), (i), (k) and (l) are approved.

§307.6. Toxic Materials

§307.6(c)(2). A reference to EPA's guidelines for the recalculation of aquatic life criteria was included. EPA will consult under the ESA on individual applications of this provision for criteria in Table 1, as appropriate. Editorial revisions were also made in §307.6(c)(2) and are also approved.

§307.6(c)(7). References to EPA's guidelines for the development of aquatic life criteria were included in the provisions to develop numeric criteria where values are not already included in the Texas WQS. Language

regarding the use of other appropriate methods, such as the quantitative-structure activity relationship was also added. EPA will consult under the ESA on individual applications of this provision, as appropriate, where such values are used for CWA purposes. Editorial revisions were also made in §307.6(c)(7) and are also approved.

§307.6(c)(10). A provision was added in the 2010 TX WQS to implement site-specific copper criteria based on a multiplier from a biotic ligand model. The paragraph states that the multiplier is assumed to be equal to one unless site-specific data has been collected. Public participation on the site-specific criteria will be provided during the permit application process. Site-specific criteria developed with a biotic ligand model will be included in Appendix E at the time of the triennial revision following approval by TCEQ and EPA. EPA will consult under the ESA on individual applications of this provision, as appropriate.

Editorial changes, which do not alter the intent or implementation of the Texas WQS, were made in provisions under §307.6(b) and under §307.6(c)(1), (4), (5), (6), (8), (9), and (11) and are approved. Revisions to the footnotes under Table 1 - Criteria in Water For Specific Metals – Aquatic Life Protection are also approved.

§307.7. Site-specific Uses and Criteria

§307.7(b)(3)(A). Dissolved oxygen

Under §307.7(b)(3)(A)(i) and Table 3, a minimal aquatic life use was included, which corresponds to the previously-established use of "no significant aquatic life" presumed for intermittent streams without perennial pools. The dissolved oxygen criteria for the minimal aquatic life use are the same as those for no significant aquatic life use.

Editorial changes were made in provisions under the above paragraphs and under the following sections: §307.7(b)(3), (A)(i) and (A)(iv); Table 3 – footnotes; §307.7(b)(3)(B)(i)-(ii); and §307.7(b)(5). These revisions do not alter the intent or implementation of the Texas WQS and are approved.

§307.9. Determination of Standards Attainment

§307.9(f) Biological integrity.

Editorial corrections were made in the first two sentences of this provision and are approved. The following two sentences were added to §307.9(f) and are also approved:

> Primary criteria associated with assessing the attainment of aquatic life uses are indices of biotic integrity and criteria for dissolved oxygen.
>
> When the appropriate aquatic life use as determined by the use-attainability study is less stringent than the presumed high use, then the appropriate aquatic life use and dissolved oxygen criteria are listed in Appendix D of §307.10 of this title after approval by EPA.

The above language is consistent with the CWA goals and the implementing regulations. Other portions of §307.9(f) are disapproved, however, as noted under Part III of this enclosure.

Appendix E- Site-specific Toxic Criteria

In the 2010 Texas WQS, the criteria listed in the table below were added to Appendix E. EPA has previously approved each of these site-specific criteria under CWA §303(c), following the process in §307.6(c)(9) of the Texas WQS, but is identifying the criteria in this enclosure for convenience.

The introductory paragraph of Appendix E was revised to include criteria based on the biotic ligand model and other updated information. Four site-specific criteria from the 2000 Texas WQS that were disapproved by EPA were removed from Appendix E in the 2010 Texas WQS. Editorial changes, such as expanded site descriptions and references to the facility which conducted the study, were also adopted in the 2010 Texas WQS for water bodies listed below and for site-specific criteria adopted in previous triennial revisions. These changes do not alter the intent of the Texas WQS and are approved.

Segment	Site Description	Facility	Parameter	Site-specific Adjustment Factor	EPA approval
0301	Remnant channel of Baker Slough from the edge of the mixing zone with Segment 0301 upstream to the permitted outfall in Cass County	International Paper	Aluminum[1]	6.39	4/29/09
0303	River Crest Reservoir	Luminant Generation	Copper[1, 3]	3.4	5/7/03
0404	Unnamed tributary of Hart Creek from the edge of the mixing zone with Hart Creek upstream to the permitted outfall in Titus County	City of Mount Pleasant	Copper[1]	7.16	11/20/06
0409	Sugar Creek from the edge of the mixing zone with Segment 0409 upstream to the permitted outfall in Upshur County	City of Gilmer	Copper[1]	6.83	10/14/03
0510	Mill Creek from the edge of the mixing zone with Segment 0510 upstream to the confluence with Adaway Creek in Rusk County	City of Henderson	Copper[1]	4.95	7/3/02
0511	Unnamed tidal drainage ditch from the edge of the mixing zone with Segment 0511 upstream to the permitted outfall in Orange County	Honeywell, Inc.	Copper[1]	2.39	11/24/03
0511	Unnamed tidal drainage ditch from the edge of the mixing zone with Segment 0511 upstream to the permitted outfall in Orange County	Firestone Polymers	Copper[1]	2.54	2/7/06
0603	Sandy Creek from the edge of the mixing zone with Segment 0603 upstream to the permitted outfall in Jasper County	City of Jasper	Copper[1]	4.67	2/1/05
0604	Unnamed tributary of Bear Creek from the edge of the zone of initial dilution with Bear Creek upstream to the permitted outfall in Polk County	International Paper – Corrigan	Aluminum[1]	5.58	9/28/05
0604	Buck Creek from the confluence with Clayton Creek upstream to the confluence with the unnamed tributary receiving the discharge from the permitted outfall in Angelina County	Lufkin Industries	Copper[1]	7.94	10/14/03
0615	Papermill Creek from the edge of the zone of initial dilution with Segment 0615 upstream to the permitted outfall in Angelina County	Abitibi Consolidated	Aluminum[1]	8.39	5/7/03

Segment	Site Description	Facility	Parameter	Site-specific Adjustment Factor	EPA approval
0805	Forney Branch from the edge of the mixing zone with White Rock Creek upstream to the permitted outfall in Dallas County	Luminant Generation	Copper[1]	3.9	5/7/03
0806	West Fork Trinity River in Tarrant County	Luminant Generation	Copper[1, 4]	2.5	5/7/03
1008	Panther Branch from the edge of the mixing zone with Lake Woodlands upstream to the permitted outfall in Montgomery County	San Jacinto River Authority	Copper[1]	6.45	6/25/03
1009	Cypress Creek and Harris County Flood Control District Ditch K159-00-00 from the edge of the mixing zone with Cypress Creek upstream to the permitted outfall in Harris County	Harris County MUD No. 358	Copper[1]	8.47	11/12/08
1014	Horsepen Creek in Harris County	Harris Co. MUD No. 155	Copper[1, 4]	4.65	6/25/08
1014	Willow Fork Drainage Dist. Lateral Ditch VA1 from the edge of the mixing zone with Segment 1014 upstream to the permitted outfall in Fort Bend County	Cinco MUD No. 1	Copper[1, 4]	7.26	1/20/2010
1113	Horsepen Bayou in Harris County	City of Clear Lake Water Authority	Copper[1, 4]	2.74	12/2/2009
1209	Unnamed ditch from the edge of the zone of initial dilution of the unnamed ditch with Gibbons Creek Reservoir upstream to the permitted Outfall 001 in Grimes County	Texas Municipal Power Agency	Aluminum[1]	6.81	11/26/2008
1701	Victoria Barge Canal in Victoria County	Air Liquide	Copper[1, 4]	2.55	11/23/05
2431	Moses Bayou from the edge of the mixing zone with Segment 2431 upstream to the drainage ditches receiving the discharge from the permitted outfall in Galveston County	ISP Technologies	Copper[1]	1.88	1/13/05
2481	Kinney Bayou tidal/Jewel Fulton Canal from the edge of the mixing zone with Ingleside Cove upstream to the permitted outfall in San Patricio County	City of Ingleside	Zinc[1]	1.14	9/19/06
2494	Vidia Ancha from the edge of the mixing zone with Segment 2494 upstream to the tidal mud flats receiving the discharge from the permitted outfall in Cameron County	Laguna Madre Water District	Copper[1]	2.52	4/28/06

1. Results based on a water-effect ratio study.
[footnote 2 is applicable to the previously-approved lead criteria for segment 0404 – Big Cypress Creek]
3. Site-specific criteria apply to the entire water body listed under the "Site Description" column. If the site described is a designated segment, the boundaries of the segment are given in Appendix C of §307.10 of this title.
4. Site-specific criteria may only be used in the evaluation of permit limits for the facility listed under the "TPDES" and "Facility" columns.

II. REVISIONS THAT EPA IS APPROVING, SUBJECT TO ESA CONSULTATION

EPA is approving the items in Part II of this enclosure subject to the outcome of consultation with the U.S. Fish and Wildlife Service under Section 7(a)(2) of the ESA. These provisions include the new and revised aquatic life criteria in Table 1; a revised aquatic life use for one classified water body in Appendix A; and revised segment descriptions in Appendices C and D for the Lavaca River (classified and unclassified reaches).

§307.6. Toxic Materials

§307.6(c). Table 1: Criteria in Water For Specific Toxic Materials – Aquatic Life Protection

Aquatic life criteria for diazinon and nonylphenol were added in the 2010 Texas WQS. Criteria for the following substances were updated: arsenic, cadmium, trivalent chromium, copper, dieldrin, endrin, hexachlorocyclohexane, lead, nickel, pentachlorophenol, tributyltin and zinc. Conversion factors for the freshwater criteria for cadmium and lead were revised based on EPA's recommended equations.

With the exception of the freshwater acute criterion for cadmium, the freshwater criteria (acute and chronic) for copper, and the freshwater acute criterion for lindane, all other criteria in the table below are EPA's current §304(a) criteria recommendations. Recalculations of the criteria for cadmium, copper and lindane were conducted following the procedures in EPA guidance documents.[1,2]

Parameter	CASRN		Freshwater (ug/l)	Saltwater (ug/l)
Arsenic (d)	7440-38-2	acute	340 w	
Arsenic (d)	7440-38-2	chronic	150 w	
Cadmium (d)	7440-43-9	acute	1.136672-(ln(hardness)(0.041838))(w*e*(1.0166(ln(hardness))-2.4743))	40.0 w
Cadmium (d)	7440-43-9	chronic	1.101672-(ln(hardness)(0.041838))(w*e*(0.7409 (ln(hardness))-4.719))	8.75 w
Chromium (Tri) (d)	16065-83-1	acute	0.316w*e*(0.8190(ln(hardness))+3.7256)	
Chromium (Tri) (d)	16065-83-1	chronic	0.860w*e*(0.8190(ln(hardness))+0.6848)	
Copper (d)*	7440-50-8	acute	0.960m *e*(0.9422(ln(hardness))-1.6448)	
Copper (d)*	7440-50-8	chronic	0.960m *e*(0.8545(ln(hardness))-1.6463)	
Diazinon	333-41-5	acute	0.17	0.819
Diazinon	333-41-5	chronic	0.17	0.819
Dieldrin	60-57-1	acute	0.24	
Endrin	72-20-8	acute	0.086	
Hexachloro-cyclohexane (*gamma*)(Lindane)	58-89-9	acute	1.126	
Lead (d)	7439-92-1	acute	1.46203-(ln(hardness)(0.145712)) w*e*(1.273(ln(hardness))-1.460)	
Lead (d)	7439-92-1	chronic	1.46203-(ln(hardness)(0.145712)) w*e*(1.273(ln(hardness))-4.705))	
Nickel (d)	7440-02-0	acute	0.998w*e*(0.8460(ln(hardness))+2.255)	
Nickel (d)	7440-02-0	chronic	0.997w*e*(0.8460(ln(hardness))+0.0584)	

[1] U.S.EPA. 1985. *Guidelines for Deriving National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*. Office of Water Regulations and Standards, Washington, DC. EPA 600/3-84-099.

[2] U.S.EPA. 1994. *Interim Guidance on Determination and Use of Water-Effect Ratios for Metals.* Office of Water. Washington, DC. EPA-823-B-94-001.

Parameter	CASRN		Freshwater (ug/l)	Saltwater (ug/l)
Nonylphenol	84852-15-3 and	acute	28	7
Nonylphenol	25154-52-3	chronic	6.6	1.7
Pentachlorophenol	87-86-5	acute	e(1.005(pH)-4.869)	
Pentachlorophenol	87-86-5	chronic	e(1.005(pH)-5.134)	
Tributyltin (TBT)	688-73-3	chronic		0.0074
Zinc (d)	7440-66-6	acute	0.978we(0.8473(ln(hardness))+0.884)	
Zinc (d)	7440-66-6	chronic	0.986we(0.8473(ln(hardness))+0.884)	

Appendix A - Site-specific Uses and Criteria for Classified Segments

Segment	Water Body	Counties	Aquatic Life Use	Dissolved oxygen criteria (average, minimum)
0305	North Sulphur River	Delta, Lamar, Fannin	Intermediate	[no revision]

In addition to the intermediate aquatic life use, EPA is approving footnote 3 under the Sulphur River Basin table in Appendix A, which describes the North Sulphur River as an intermittent stream with perennial pools. TCEQ's assessment of physical habitat, flow regime, and the biological community support the revision of the aquatic life use in segment 0305. Please see Part III of this enclosure regarding EPA's disapproval action on footnote 2 for the North Sulphur River.

Appendix C – Segment Boundary Descriptions

The upper boundary of segment 1602 – Lavaca River above Tidal was revised to remove the upper portion (approximately 29 miles) from description of the classified segment. In the upper six miles (headwaters) of this unclassified portion of the Lavaca River, the revision of the aquatic life use and associated dissolved oxygen criteria from high to minimal are approved subject to completion of consultation under the ESA. The middle reach (approximately 23 miles) of the Lavaca River is included as an unclassified water body in Appendix D of the Texas WQS. TCEQ's Use Attainability Analyis (UAA) documents that the three reaches of the Lavaca River represent areas with different characteristics for flow and physical habitat.

Appendix D – Site-specific Uses and Criteria for Unclassified Water Bodies

Segment	Water Body	Counties	Aquatic Life Use	Dissolved oxygen criteria (average, minimum)	Description
1602	Lavaca River	Lavaca	(no revision)	5.0 mg/l, 3.0 mg/l [no revision for October 16-March 14]	Intermittent stream with perennial pools from the confluence of Campbells Creek west of the City of Hallettsville upstream to the confluence with West Prong Lavaca River downstream of the City of Moulton

TCEQ's UAA documents that this middle reach of the Lavaca River is an intermittent stream with perennial pools and that a fish community representative of a high aquatic life use is supported. EPA is approving the segment description for this reach of the Lavaca River in Appendix D, EPA agrees that seasonal criteria for the Lavaca River may be appropriate for this reach, but is disapproving footnote 10 of Appendix D. Please see additional discussion below in Part III.

Appendix E- Site-specific Toxic Criteria

In the 2010 Texas WQS, the following criteria were added to Appendix E. EPA has previously approved each of these site-specific criteria under CWA §303(c), following the process in §307.6(c)(9) of the Texas WQS, but is identifying the criteria in this enclosure for convenience. These criteria were developed after the adoption of the 2000 Texas WQS and were listed on EPA's Water Quality Standards Repository. EPA approved these criteria subject to the outcome of consultation with the U.S. Fish and Wildlife Service under Section 7(a)(2) of the ESA.

Segment	Site description	Facility	Parameter	Site-specific Adjustment Factor	EPA approval
1701	Victoria Barge Canal in Calhoun County	Dow Chemical	Copper[1, 4]	1.81	8/31/06
2485	La Volla Creek from the edge of the mixing zone with Oso Creek upstream to the permitted outfall in Nueces County	City of Corpus Christi	Copper[1]	2.07	5/16/07

1. Results based on a water-effect ratio study.
4. Site-specific criteria may only be used in the evaluation of permit limits for the facility listed under the "TPDES" and "Facility" columns.

III. REVISIONS THAT EPA IS DISAPPROVING

§307.9. Determination of Standards Attainment

EPA has identified portions of the revised provision at §307.9(f). Biological Integrity, as inconsistent with the Agency's CWA implementing regulations. Therefore, EPA is disapproving the following language.

> §307.9(f). Biological Integrity. […]When monitoring data indicate that primary criteria are not being attained for a presumed high aquatic life use, as defined in §307.4(h) of this title (relating to General Criteria), the affected water body is not automatically considered impaired and placed in Category 5 of the Texas Integrated Report based on the primary criteria. Instead, the listing can be deferred until a use-attainability analysis of the water body is conducted to establish the appropriate aquatic life use. If the water body is not meeting the primary criteria for the aquatic life use that is determined to be appropriate, or if the use-attainability analysis has not been completed and submitted to EPA for review within the next two submissions of Texas' Integrated Report (approximately four years), then the water body is listed as impaired […] Water bodies that are not meeting a presumed high aquatic life use are identified and subject to notice and public comment during the development of Texas' Integrated Report.

This language, which allows for the deferment of listing under CWA §303(d) for a presumed high aquatic life use in an unclassified water body, is in effect changing the applicable use for CWA implementation purposes without justification as required by 40 CFR 131.10. Section 40 CFR §130.7(b)(1)(iii) requires that states identify water quality limited segments for which pollution control requirements required by local, state, or federal authority are not stringent enough to implement any WQS applicable to such waters. The regulations make no distinctions as to the appropriateness of the standards or how they were derived. The requirement applies equally to unclassified waters with presumed uses as to classified waters since the presumed standard is still considered the applicable standard. Therefore, any existing and readily available data for dissolved oxygen or biological assemblages should be used to assess the water quality standards, whether the high aquatic life use is presumed or has been confirmed with a UAA. EPA believes that category 5B of the State's existing Integrated Report provides adequate flexibility to the State to address WQS issues prior to the development of a total

maximum daily load for a given water body. The State can resolve this disapproval action by removing the above language from the Texas WQS.

Appendix A - Site-specific Uses and Criteria for Classified Segments

EPA has determined that the following revisions to aquatic life uses or dissolved oxygen criteria are not supported by documentation provided for the 2010 revision. Further discussion of each item included in EPA's disapproval action is provided following the table.

Segment	Water Body	Counties	Aquatic Life Use	Dissolved oxygen criteria (average, minimum)
0305	North Sulphur River	Delta, Lamar, Fannin	Limited aquatic life use for benthic community (in footnote 2 of Sulphur River Basin) [revision for intermediate aquatic life use is approved]	[no revision]
2485	Oso Bay	-	[no revision]	4.5 mg/L, 2.0 mg/L
2491	Laguna Madre	-	[no revision]	4.5 mg/L, 2.0 mg/L

Segment 0305 – North Sulphur River

The North Sulphur River is part of the Sulphur River Basin in Northeast Texas. It spans most of Delta and Lamar Counties, upstream to its headwaters in Fannin County (approximately 48 miles). In the 2000 Texas WQS, the North Sulphur River was designated with a high aquatic life use and a corresponding dissolved oxygen criterion of 5.0 mg/L (24-hour mean). As included under Part II of this enclosure, EPA is approving the revised aquatic life use of intermediate for segment 0305. No revisions to the dissolved oxygen criteria were proposed. EPA agrees that the North Sulphur River is an intermittent stream with perennial pools and is approving this description in footnote 3 under the Sulphur River Basin in Appendix A of the Texas WQS. However, EPA is disapproving footnote 2 in Appendix A, which specifies that the benthic macroinvertebrate community will be assessed with a limited aquatic life use.

> "For the purpose of assessment, the intermediate aquatic life use applies only to the fish community. The benthic community is to be assessed using a limited aquatic life use."

Footnote 2 also includes language for assessment of the fish community as intermediate. This revision is included under EPA's approval action for the revised intermediate aquatic life use in the table of Appendix A (please see Part II of this enclosure).

The State provided a UAA which included assessment of aquatic habitat, water chemistry and the fish and benthic macroinvertebrate communities, following TCEQ monitoring protocols. The UAA documents that extended periods of low or no flow occur at several stations on the North Sulphur River. The UAA also found that the physical habitat is representative of that which would support an intermediate aquatic life use. With the ecoregion-based Index of Biotic Integrity (IBIs), the fish community was found to be supporting an intermediate aquatic life use. The assessment of the benthic macroinvertebrate community in the North Sulphur River was found to be supporting a limited aquatic life use, based on the statewide index for assessment of benthic invertebrates. These results were incorporated in the 2010 revisions to the Texas WQS.

In addition to the statewide index for assessment of the benthic community, TCEQ has also developed a draft index for benthic macroinvertebrates based on three bioregions.[3] Similar to the ecoregion-based IBIs used to assess the fish community, the bioregion index is intended to account for geographical variability across the state. The North Sulphur River is located in the Central bioregion. A significant difference between the statewide index and the bioregion index is the collection method. The statewide index uses the 5-minute effort for kicknet sampling, while surber sampling (three replicates) is used for the bioregion index. Also, chironomids are identified to the species level under the bioregion index, but only identified to the family level under the statewide index.

Although surber sampling was not used for the North Sulphur River UAA and chironomids were not identified to species level, EPA calculated the bioregion index with the data from the UAA as a rough estimate on whether conclusions in the UAA could change with use of the more refined index for the benthic community. Several of the eleven factors for the bioregion index are obtained directly from the UAA data and scores would not be affected by the species level of identification for chironomids. These factors include: number of Ephemeroptera taxa; % of total taxa as Ephemeroptera, Plecoptera and Trichoptera; and % of individuals in the family Chironomidae. Scores for the following factors could increase with identification at the species level for chironomids: total number of taxa; number of diptera taxa; and % dominance (three taxa). Among chironomid species, tolerance levels vary greatly, as stated in TCEQ's Surface Water Quality Monitoring manual. This could increase or decrease scores for number of intolerant taxa and % tolerant taxa (as a percentage of total number of organisms).

Using the UAA data and the bioregion index, one score was in the range for high aquatic life use, five scores were in the range of intermediate aquatic life use, and only two were in the range of limited aquatic life use. The aquatic life categories for five of the eight sampling events increased with use of the bioregion index and the average of all events was 24.8, which is mid-range for intermediate aquatic life use. The following table represents the differences in aquatic life uses between for the statewide index and the estimated scores for the bioregion index, both using data from the UAA.

Station	Date	UAA (statewide index)	Bioregion index
17613	5/14/2007	Limited	Limited
17613	8/13/2007	Intermediate	High
17613	5/22/2003	Intermediate	Intermediate
17613	7/29/2003	Limited	Intermediate
18846	5/15/2007	Limited	Intermediate
18846	8/13/2007	Limited	Intermediate
18844	5/15/2007	Limited	Limited
18844	8/14/2007	Limited	Intermediate

Based on the Agency's evaluation of the data presented in support of the UAA, EPA concludes that the documentation is insufficient to justify the limited aquatic life use for the benthic community in segment 0305. 40 CFR §131.5(a)(4) requires revised standards for uses less than the CWA §101(a)(2) goals to be based upon appropriate technical and scientific data and analyses. Specifically, EPA's evaluation of UAA data with the bioregion index indicates that the existing benthic community may currently represent an intermediate aquatic

[3] Texas Commission on Environmental Quality. 2007. *Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Community and Habitat Data.* Austin: TCEQ publication RG-416. http://www.tceq.texas.gov/publications/rg/rg-415/index.html

life. Additionally, there are several attributes of aquatic habitat in the North Sulphur River that can support benthic macroinvertebrate communities (e.g., some gravel, riffles and different types of instream cover).

With EPA's disapproval of footnote 2, the benthic macroinvertebrate community should be assessed with the intermediate aquatic life use. The State can resolve this disapproval action by removing footnote 2 from the Texas WQS in the next revision.

Segment 2485 – Oso Bayou and Segment 2491 – Laguna Madre

The Laguna Madre spans approximately 130 miles (347.4 mi^2) along the Texas coastline from the U.S. – Mexico border north to Corpus Christi Bay. It is separated from the Gulf of Mexico by Padre Island. Laguna Madre is one of five hypersaline lagoons in the world and the only one in North America. Characteristics of Laguna Madre include shallow depths, low precipitation, very limited freshwater inflow, high temperatures, high evaporation rates, restricted dispersion with open Gulf waters, high salinity, and strong southeasterly coastal breezes. Extensive seagrass beds are found in Laguna Madre.

Oso Bay is located within the City of Corpus Christi and is adjacent to Corpus Christi Bay. It is 7 mi^2 and is also a shallow water body, with some seagrass beds.

In the Laguna Madre, there are limited impacts from permitted wastewater discharges (primarily at the confluence with the Arroyo Colorado). However, numerous permitted discharges are found in the Oso Bay watershed, as noted in the UAA. These include seven municipal facilities and four industrial facilities discharging to Oso Creek or Oso Bay**.** One of the industrial facilities is a thermal discharge (steam electric plant) of up to 540 MGD directly to Oso Bay (water transfer from Laguna Madre). Impairments of dissolved oxygen criteria have been identified in portions of both water bodies since the mid-1990s. Concerns with elevated levels of nutrient parameters have been identified in most areas of Oso Bay and some areas of Laguna Madre. Because of the likely effects of wastewater discharges in Oso Bay, TCEQ's analyses focused on data collected from the Laguna Madre.

In the 2000 Texas WQS (and previous versions), both water bodies are designated with exceptional aquatic life uses and corresponding dissolved oxygen criteria of 5.0 mg/L (24-hour mean) and 4.0 (24-hour minimum). In 2010, Texas revised the dissolved oxygen criteria for both water bodies to 4.5 mg/L (24 hour mean) and 2.0 mg/L (24-hour minimum). The revised criteria are based on multi-year studies of physical, chemical and biological parameters in Oso Bay and Laguna Madre using TCEQ's established protocols. Unlike sampling protocols for freshwater streams, indices for assessment of physical habitat and the biological communities in marine waters are not yet available. TCEQ has not proposed revisions to the exceptional aquatic life uses for Oso Bay or Laguna Madre.

TCEQ's UAA discusses several considerations for development of site-specific dissolved oxygen criteria such as seasonal effects on dissolved oxygen solubility due to salinity and temperature differences. The State's evaluation of salinity data found a lack of seasonal differences in salinity patterns for Laguna Madre. As expected, there is a seasonal difference in temperature, which often exceeds 30 ˚C in Laguna Madre during the summer months.

TCEQ also calculated percent saturation of dissolved oxygen for stations in Oso Bay and in Laguna Madre. However, the adopted site-specific criteria were not derived based on percent saturation. Although dissolved oxygen saturation is often less than 100% in both water bodies, many areas in Oso Bay and Laguna Madre are supporting the current criteria of 5.0 mg/L (24-hour average) and 4.0 mg/L (24-hour minimum. In the 2010 Integrated Report, two of the three assessment units in Oso Bay were delisted for impaired dissolved oxygen levels. These two areas represent approximately 6.3 mi^2 of Oso Bay.

The middle assessment unit of Oso Bay (approximately 0.9 mi^2) remains listed as impaired for not meeting the 24-hour minimum criterion of 4.0 mg/L (seven exceedances in 25 diurnal sampling events). However, the mean of the seven exceedences was 3.57 mg/l, which is greater than the proposed 24-hour minimum criterion of 2.0 mg/l. Also, the criterion of 4.0 mg/L was attained during instantaneous events (grab samples), with only five of 77 samples not meeting this value. A water quality concern also exists in the middle assessment unit for instantaneous events compared against the 24-hour average criterion of 5.0 mg/L (mean exceedence of 4.05 mg/L, from 11 of 77 grab samples), although this criterion was supported by samples collected in the 25 diurnal events (two exceedances, average excursion of 4.94 mg/L).

In the lowest assessment unit of the Laguna Madre, no impairments or water quality concerns have been identified in the previous three listing cycles. This area represents approximately 91.4 mi^2. The middle assessment unit of the Laguna Madre represents approximately 26 mi^2 near the confluence with the Arroyo Colorado. Similar to the results found for Oso Bay for the 2010 Integrated Report, the 24-hour minimum criterion of 4.0 mg/L was not met in diurnal sampling events and a concern was identified for grab samples compared with the 24-hour average criterion of 5.0 mg/L. In the upper assessment unit of the Laguna Madre (230 mi^2), the 24-hour minimum criterion of 4.0 mg/L was not met in 16 of 98 diurnal events. However, there were no exceedences of this same criterion in 260 grab samples. There was also no impairment identified in diurnal sampling events (or water quality concern in grab samples) for the 24-hour criterion of 5.0 mg/L in the upper assessment unit.

As discussed above, the UAA includes an evaluation of dissolved oxygen solubility (i.e., percent saturation). The proposed 24-hour criterion of 4.5 mg/L represents 90% saturation of the current criterion of 5.0 mg/L and the UAA cites EPA's criteria document for dissolved oxygen regarding use of a 90^{th} percent of the criterion where lower levels are due to natural conditions.[4] However, the proposed 24-hour minimum criterion of 2.0 mg/L is significantly less than 90% of the current criterion of 4.0 (mg/L), which would be 3.6 mg/L.

EPA agrees with many of the findings in the UAA, including the need to account for natural conditions in un-impacted waters. However, the UAA did not include documentation on how the proposed criteria, particularly the minimum criterion of 2.0 mg/L would be protective of aquatic life. EPA's review also found that the current dissolved oxygen criteria are attained in large areas of both Laguna Madre and Oso Bay. Thus, EPA is disapproving the proposed criteria.

Under 40 CFR §131.21(e), new and revised standards do not go into effect for CWA purposes until approved by EPA. The previously-approved criteria of 5.0 mg/l (24-average) and 4.0 mg/l (24-hour minimum) will apply. The State can resolve this disapproval action by removing the site-specific criteria from the Texas WQS in the next revision. The State may wish to consider development of site-specific criteria based on percent saturation or other conditions, possibly using data collected for this UAA. As recommended in the supporting documentation provided with the UAA, it also may be appropriate to create two or more classified segments for the Laguna Madre.

Appendix D – Site-specific Uses and Criteria for Unclassified Water Bodies

Segment 1602 – Lavaca River

The Lavaca River is part of the Lavaca River Basin in South Texas. The non-tidal reach of the Lavaca River spans approximately 94 miles across Jackson and Lavaca Counties. In the 2000 Texas WQS (and previous versions), the entire length of the non-tidal portion of the Lavaca River was designated with a high aquatic life use and corresponding dissolved oxygen criterion of 5.0 mg/L (24-hour mean). As included under Part II of this

[4] U.S. EPA. 1986. Ambient Water Quality Criteria for Dissolved Oxygen. U.S. Environmental Protection Agency. Office of Water Regulations and Standards. Criteria and Standards Division. Washington, DC. EPA 440/5-86-003.

enclosure, EPA is approving the revision of the upper boundary for segment 1602 - Lavaca River in Appendix C of the 2010 Texas WQS to remove the upper 29 miles from the classified segment.

Under Part II, EPA is also approving the addition of the middle reach of the Lavaca River that was added to Appendix D in the 2010 Texas WQS, based on the results of a UAA to assess the aquatic life use. EPA agrees that the middle reach of Lavaca River included in Appendix D of the 2010 Texas WQS is intermittent with perennial pools and is approving the segment description in Appendix D. The UAA documents that extended periods of low or no flow occur in this reach, but deep pools remain during this time.

In the 2010 Texas WQS, footnote 10 was added to Appendix D and includes seasonal site-specific dissolved oxygen criteria for this middle reach of the Lavaca River.

> "Site-specific DO criteria of 2.0 mg/L as a 24-hour average and 1.0 mg/L as a minimum apply from March 15th through October 15th."

The UAA found that a fish community representative of a high aquatic life use is present in the Lavaca River. Under 40 CFR §131.11(a), numeric criteria must protect the applicable designated uses. EPA's regulations also require criteria to be based on a sound scientific rationale. While the fish community has likely adapted to wide fluctuations in dissolved oxygen, EPA believes that that the diverse fish community found in this reach would not be supported by the seasonal criteria of 2.0 mg/L (24-hour average) and 1.0 mg/L (minimum) for the entire six-month period included in footnote 10 of the 2010 Texas WQS. The seasonal site specific criteria in Appendix D will not protect a high aquatic life community from March 15th through October 15th because the spawning period occurs in early spring and higher levels of dissolved oxygen are needed for reproduction and survival of early life stages.

Therefore, EPA is disapproving footnote 10 in Appendix D. Under 40 CFR §131.21(e), new and revised standards do not go into effect for CWA purposes until approved by EPA. The previously-approved criteria of 5.0 mg/l (24-average) and 3.0 mg/l (24-hour minimum) will apply from March 15th through October 15th. The State can resolve this disapproval action by removing footnote 10 from the Texas WQS in the next revision or by adopting alternative criteria, such as those values previously established in §307.4(h)(4) and §307.7(b)(3)(a)(i) of the Texas WQS for intermittent streams with perennial pools of 3.0 mg/l (24-average) and 2.0 mg/l (24-hour minimum).

IV. REVISIONS THAT ARE NOT WATER QUALITY STANDARDS UNDER THE CWA

§307.7. Site-specific Uses and Criteria

§307.7(b)(3)(B)(iii). Language regarding the use of additional sources of information for determining acceptable levels of toxic materials was added to item (iii) of the Oyster waters use.

This revision has been determined not to be subject to review under CWA §303(c) review because fish and shellfish consumption advisories issued by the Texas Department of State Health Services are not part of the WQS program and therefore, the basis for issuing a fish consumption advisory is not a WQS under the CWA. Section 307.7b)(3)(B)(iii) was originally adopted in the 1984 Texas WQS and modified in the1988 Texas WQS. Although this action was arguably covered by EPA's previous approval actions, EPA does not consider it to be a WQS because it is not a legally binding norm that describes the desired or expected ambient condition of the water body, and specifies the designated use(s), water quality criteria, or antidegradation requirements. Under CWA §303(c), EPA only has authority to approve or disapprove new or revised state WQS. Because §307.7(b)(3)(B)(iii) is not a WQS, EPA could not have approved it in our previous actions. Thus, EPA hereby

clarifies that the Agency did not take CWA §303(c) action on its action letters dated February 28, 1985, and June 29, 1988.

§307.9. Determination of Standards Attainment

§307.9(a), §307.9(b), and §307.9(d). Sample Analysis. References to the Texas regulations for laboratory accreditation were added, along with updated titles for the state's water quality monitoring manuals and assessment procedures. Editorial changes were also made in provisions under these paragraphs which do not alter the intent or implementation of the Texas WQS.

Section 307.9(a) was originally adopted in the 2000 Texas WQS. Sections 307.9(b) and (d) were originally adopted in the 1973 Texas WQS, with modifications made in the 1984, 1988, 1995 and 2000 Texas WQS. Although these provisions were arguably covered by EPA's previous approval actions, EPA does not consider them to be WQS because they are not legally binding norms that describe the desired or expected ambient condition of the water body, and specify the designated use(s), water quality criteria, or antidegradation requirements. Under CWA §303(c), EPA only has authority to approve or disapprove new or revised state WQS. Because §307.9(a), (b) and (d) are not WQS, EPA could not have approved them in our previous actions. Thus, EPA hereby clarifies that the Agency did not take CWA §303(c) action on §307.6(e)(2)(A), (B), or (D) in its action letters dated October 25, 1973; February 28, 1985; June 29, 1988; March 11, 1998; and August 6, 2008.