

DECISION DOCUMENT FOR LOUISIANA'S 2004 §303(d) LIST

The statutory and regulatory requirements, and the Environmental Protection Agency's (EPA's) review of Louisiana's compliance with each requirement, are described in detail below.

1. Date of Transmittal Letter "FINAL 2004 §303(d) list" From the State: April 1, 2004
Date of Receipt by EPA: April 1, 2004
2. Date of Transmittal Letter: Submittal of Louisiana's Corrected 2004 §303(d) List and Integrated Report
Date of Receipt by EPA: June 3, 2004
3. Date of Corrections and Updates to Louisiana's 2004 §303(d) List and Integrated Report from the State: October 19, 2004

Purpose

The purpose of this review document is to describe the rationale for EPA's approval of Louisiana's 2004 section 303(d) list of water quality limited waters requiring TMDLs. The following sections identify those key elements to be included in the list submittal based on the Clean Water Act and EPA regulations. See 40 CFR section 130.7. EPA reviewed the methodology used by the State in developing the 303(d) list and the State's description of the data and information it considered. EPA's review of Louisiana's §303(d) list is based on whether the State reasonably considered all existing and readily available water quality-related data and information and reasonably identified waters required to be listed.

Statutory and Regulatory Background

Identification of WQLSs for Inclusion on section 303(d) List

Section 303(d)(1) of the Act directs states to identify those waters within its jurisdiction for which effluent limitations required by section 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standard, and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The section 303(d) listing requirements applies to waters impaired by point and/or nonpoint sources, pursuant to EPA's long-standing interpretation of section 303(d).

EPA regulations provide that states do not need to list waters where the following controls are adequate to implement applicable standards: (1) technology-based effluent limitations required by the Act, (2) more stringent effluent limitations required by state or local authority, and (3) other pollution control requirements required by state, local, or federal authority. See 40 CFR 130.7(b)(1).

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Consideration of Existing and Readily Available Water Quality-Related Data and Information

In developing section 303(d) lists, the states are required to assemble and evaluate all existing and readily available water quality-related data and information, including, at a minimum, consideration of existing and readily available data and information about the following categories of waters: (1) waters identified as partially meeting or not meeting designated uses, or as threatened, in the state's most recent section 305(b) report; (2) waters for which dilution calculations or predictive modeling indicate non-attainment of applicable standards; (3) waters for which water quality problems have been reported by governmental agencies, members of the public, or academic institutions; and (4) waters identified as impaired or threatened in any section 319 nonpoint assessment submitted to EPA. See 40 CFR 130.7(b)(5). In addition to these minimum categories, the states are required to consider any other data and information that are existing and readily available. EPA's 1991 Guidance for Water Quality-Based Decisions describes categories of water quality-related data and information that may be existing and readily available. See "*Guidance for Water Quality-Based Decisions: The TMDL Process*", EPA Office of Water, 1991, Appendix C ("EPA's 1991 Guidance"). While the states are required to evaluate all existing and readily available water quality-related data and information, the states may decide to rely or not rely on particular data or information in determining whether to list particular waters.

In addition to requiring the states to assemble and evaluate all existing and readily available water quality-related data and information, EPA regulations at 40 CFR 130.7(b)(6) require the states to include as part of their submissions to EPA documentation to support decisions to rely or not rely on particular data and information for decisions to list or not list waters. Such documentation needs to include, at a minimum, the following information: (1) a description of the methodology used to develop the list; (2) a description of the data and information used to identify waters; and (3) any other reasonable information requested by the Region. The state described in an attachment to its submittal titled "Rational for Louisiana's DRAFT FINAL 2004 section 303(d) List of Impaired Waterbodies and Integrated Report" how it used existing and readily available data in the preparation of the Louisiana's 303(d) list for 2004.

Priority Ranking

EPA regulations also codify and interpret the requirement in section 303(d)(1)(A) of the Act that the states establish a priority ranking for listed waters. The regulations at 40 CFR 130.7(b)(4) require the states to prioritize waters on their section 303(d) lists for TMDL development, and also to identify those water quality limited segments (WQLSs) targeted for TMDL development in the next two years. In prioritizing and targeting waters, the states must, at a minimum, take into account the severity of the pollution and the uses to be made of such waters. See section 303(d)(1)(A). As long as these factors are taken into account, the Act provides that the states establish priorities. The states may consider other factors relevant to prioritizing waters for TMDL development, including immediate programmatic needs,

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vulnerability of particular waters as aquatic habitats; recreational, economic, and aesthetic importance of particular waters; degree of public interest and support; and the state or national policies and priorities. See 57 FR 33040, 33045 (July 24, 1992), and EPA's 1991 Guidance.

Review of Louisiana's Submission

Consideration of Existing and Readily Available Water Quality-Related Data and Information.

EPA has reviewed the State's submission, and has concluded that the State developed its section 303(d) list in partial compliance with section 303(d) of the Act and 40 CFR 130.7. EPA has determined that Louisiana's submission does not include all waters that meet section 303(d) listing requirements. Therefore, EPA is partially approving and partially disapproving Louisiana's list submission and proposing a final list inclusive of the list submitted by Louisiana and additional waters and pollutants that EPA has determined meet the listing requirements to the final 2004 list. EPA's review is based on its analysis of whether the State reasonably considered existing and readily available water quality-related data and information and reasonably identified waters required to be listed, including a careful review of the waters addressed in the April 1, 2002 Consent Decree (CD) in Sierra Club and Louisiana Environmental Action Network, Inc. v. EPA, Civil Action Number: 96-0527, . Based on EPA's review, 27 waterbody pollutant pairs are proposed for addition to Louisiana's 2004 §303(d) list.

As suggested by recent EPA guidance, Louisiana chose to combine the 2004 section 305(b) report and section 303(d) list into a single report following EPA's listing guidance titled "Guidance for the 2004 Integrated Assessment and Reporting on the Quality of States' Waters" ("Integrated Report"). A single assessment methodology for the Integrated Report was used for both the 305(b) reporting and the 303(d) listing activities. The Integrated Report included five categories as established in EPA guidance. Category 5, which is the 2004 section 303(d) list, was also included in the report. Category 5 is the portion of the Integrated Report on which EPA is taking action today. A single assessment methodology for the integrated report was used for both the 305(b) reporting and the 303(d) listing activities.

Although EPA reviewed Louisiana's listing methodology as part of our review of the listing submission, EPA's approval of the State's listing decisions should not be construed as concurrence with or approval of the listing methodology. EPA is not required to take action on the listing methodology. See 40 CFR 130.7. EPA's decision to partially approve and partially disapprove Louisiana's listing decisions is based on EPA's review of the data and information submitted concerning individual waters and the State's evaluations of those waters. While EPA considered the State's listing methodology as part of its review, our evaluation was intended to determine whether the State had identified all waters that meet federal listing requirements specified in section 303(d) and 40 CFR 130.7. Although EPA has concerns about some aspects of the State's listing methodology, those concerns are considered in our final listing decision to add impaired waters not included in the list submitted by the State of Louisiana.

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The listing methodology employed by Louisiana for 2004 describes a set of decision criteria that were flexibly applied. In general, waters were listed in cases where a certain percentage of samples exceeded the applicable water quality standards during the past years. The applicable percent exceedances are provided in Table 2 of the Louisiana submittal. EPA technical staff determined the percent exceedance used in the assessment methodology is a reasonable approach consistent with EPA 1997 Guidance document and is consistent with Louisiana's water quality standards. However, EPA determined that the assessment of dissolved oxygen criterion of 5.0 mg/L, using a minimum of 3 mg/l and a median of 5 mg/l, is inconsistent with Louisiana's water quality standards which states, " The following dissolved oxygen (DO) values represent minimum criteria for the type of water specified. . . . For a diversified population of fresh warmwater biota including sport fish, the DO concentration shall be at or above 5 mg/L."

EPA has determined that Louisiana took reasonable steps to solicit all existing and readily available water quality-related data and information from members of the public and government agencies via the public participation for Louisiana's 2004 Integrated Report by the State of Louisiana as outlined:

1. Requests for data were mailed on or about December 23, 2003 to over 170 public and private organizations or individuals. Ending date for receipt of data was January 21, 2004.
2. Issued public notice requesting comments on draft 2004 303(d) List. Rationale for development of the 303(d) list was also included in the information available for public review. Notice was placed in newspapers on or about February 20, 2004. Actual date of publication was determined by newspaper printing date, with conclusion of notice period calculated to be at least 30 days from date of last publication. Notices were placed in the following newspapers:

Baton Rouge, The Advocate (official State journal)
Lake Charles American Press
Lafayette, The Advertiser
Monroe New-Star
Alexandria, The Town Talk
Shreveport, The Times
New Orleans, The Times-Picayune
3. Public comment period ran until March 22, 2004 at 4:30. A public hearing was also held on March 22, 2004 at 1:30 p.m. to receive oral comments. LDEQ issued a separate press release on March 17, 2004, announcing the March 22, 2004 public hearing.
4. Following conclusion of public comment period LDEQ prepared a response to comments document. This document was included in the Integrated Report submittal to EPA on April 1, 2004.

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EPA has reviewed Louisiana's description of the data and information it considered, its methodology for identifying waters. EPA concludes that the State properly assembled all existing and readily available data and information, including data and information relating to the categories of waters specified in 40 CFR 130.7(b)(5). EPA concludes that the State's decisions to list the waters identified in its listing submittal are consistent with federal listing requirements. However, EPA concludes that the State's decision not to list waters and pollutants detailed below is inconsistent with federal listing requirements. As discussed in detail below, the available information leads to a conclusion that these waters are water quality limited under Louisiana water quality standards and need to be listed pursuant to section 303(d). Therefore, EPA is proposing to add these waters to Louisiana's 2004 list and will be seeking public comment on these proposed additions.

Basis for Decision to Add Waters to Louisiana's 2002 section 303(d) List

Based on EPA's initial review of the final list submission EPA identified waters which exceeded currently applicable water quality standards. The concerns identified by EPA, the State's response, and EPA's decisions are discussed below. See items 1-3 of Administrative Record.

Dissolved Oxygen general evaluation criteria for finding of non-support

The evaluation of the dissolved oxygen data to assess for non-support based on applicable criteria as discussed below, a number of general criteria were applied to the data as outlined.

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Typology of dissolved oxygen general evaluation criteria applied to all data		
Topic	Evaluation criteria	Application to criteria
Rounding rules applied ¹	<p>When the digit immediate after the one to be retained is less than five, the retained figure is kept unchanged.</p> <p>When the digit immediately after the one to be retained is greater than five, the retained figure is increased by one.</p> <p>When the digit immediately after the one to be retained is exactly five and the retained digit is even, it is left unchanged and conversely.</p> <p>When two or more figures are to the right of the last figure to be retained, they are considered as a group in rounding decisions.</p>	<p>For example: 2.541 becomes 2.5 to two significant figures.</p> <p>For example: 2.453 becomes 2.5 to two significant figures.</p> <p>For example: 3.450 becomes 3.4; but 3.550 becomes 3.6 to two significant figures.</p> <p>Thus in 2.4(501), the group (501) is considered to be >5 while for 2.5(499) is considered to be <5.</p>
Dissolved Oxygen (DO) Measurement Accuracy	EPA Method 360.1: $\pm 2\%$ ²	Freshwater Criteria <4.9 Estuarine < 3.9

Furthermore, if DO criteria were found to be not supported then nutrients may be one of the suspected causes of the impairment. Therefore, if a specific nutrient (nitrogen, phosphorus, ammonia) was previously listed on the Attachment A of the Court Ordered Consent Decree agreement dated April 2, 2002, then these listings were included on the 2004 303(d) list. If nutrients were not listed in the Attachment A of the 2002 Consent Decree, but DO was found to be impaired, only DO was included on the 2004 303(d) list.

1. Freshwater Dissolved Oxygen without site-specific criteria finding of non-support

The assessment methodology, adopted by LDEQ for purpose of evaluating those waters without site specific criteria for the Integrated Report, defines a water unimpaired for DO deficiencies as a water that has a median concentration of greater than 5 mg/l with no more than ten percent of all samples less than 3 mg/l. This assessment methodology is applied to a series of daily grab samples collected generally once per month over a year. LDEQ claims that this

¹Taylor, John Keenan. 1987. Quality Assurance of Chemical Measurements. P. 200-201. Lewis Publishers, Inc.

²Technical Bulletins: © 2002 Hydrolab Inc. and © YSI Environmental

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assessment method is a reasonable interpretation of the language found in their water quality standards as cited above. EPA does not agree that this interpretation is appropriate on several levels. EPA's primary concern is that the water quality standards establish a minimum of 5 mg/l as the criterion not a median of 5 mg/l. Such an application can lead to numerous values less than the established minimum being allowed with out a finding of impairment. EPA is also concerned that the application of such an approach could lead to the degradation of waters that currently meet the 5 mg/l criteria minimum before a finding of impairment highlights concerns.

LDEQ cites the language in the standards statement that, "[N]aturally occurring variations below the criterion specified may occur for short periods", as the basis for their interpretation. EPA finds that it cannot concur with this interpretation. EPA finds that the language as written, clearly is meant to interpret short term as variations that occur as a result of the photosynthetic variability within a normal diel cycle. Such daily variability cannot be assessed using monthly grab samples.

As a result of EPA's determination, a reassessment of all DO information on those subsegments without site specific criteria was conducted. EPA guidance recommends that a "greater-than 10% exceedance percentage" be used for determining whether waters are meeting their designated use for aquatic life use support. Based on this guidance and accounting for uncertainty of the estimator of designated use support, DO information was reassessed using an Exact Binomial Test for Minimum Dissolved Oxygen for selected waterbodies remaining in dispute between the State and EPA.

The baseline condition assumed that no more than 10% of the samples had DO values <4.9 mg/L. The alternative condition was that more than 10% of the samples failed to attain this DO criterion. Therefore, the null hypothesis (H_0) and the alternative hypothesis (H_a) are:

H_0 : the proportion of the X samples with DO < 4.9 mg/l is ≤ 0.10

H_a : the proportion of the X samples with DO < 4.9 mg/l is > 0.10

Furthermore, both the Type I and Type II statistical errors were balanced giving equal weight for the listing/de-listing decisions with an allowable exceedance of 10 percent. The following table outlines the minimum number of exceedances to reject H_0 for the anticipated range of sample sizes.

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Sample Size	Minimum No. to Reject H ₀	Type I Error	Type II Error	Power (%) (1-Type II Error)
4 - 9	1	0.34	0.32	68.4
10 - 15	2	0.26	0.24	75.6
16 - 21	3	0.21	0.20	80.3
22 - 27	4	0.17	0.16	83.8
28 - 33	5	0.14	0.14	86.5
34 - 39	6	0.12	0.11	88.6
40 - 45	7	0.10	0.10	90.4
46	8	0.08	0.08	91.8

Please note that the minimum numbers of exceedances for listing a waterbody as impaired can be generated by a number of statistical packages. In this instance, the Microsoft Excel function CRITBINOM (trials, probability_s, alpha) calculates the smallest number of successes out of “n” trials. The statistical power for each sample size was calculated using the Microsoft Excel function BINOMDIST (number_s, trials, probability_s, cumulative).

Using the Exact Binomial Test for Minimum Dissolved Oxygen, EPA has determined that the following sub-segments should be listed as impaired for DO based on a finding of non-support.

Sub-segment	Description	Pollutant
Atchafalaya River Basin (01)		
010201	Atchafalaya River Mainstem-Simmesport to Whiskey Bay Pilot Channel at mile 54	Organic enrichment/low DO
Red River Basin (10)		
100404	Cypress Bayou Reservoir	Organic enrichment/low DO
100405	Black Bayou (including Black Bayou Reservoir)	Organic enrichment/low DO
100406	Flat River - Headwaters to Loggy Bayou	Organic enrichment/low DO
100501	Bayou Dorcheat - Arkansas State Line to Lake Bistineau (Scenic)	Organic enrichment/low DO

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Sub-segment	Description	Pollutant
Red River Basin (10) - continued		
100601	Bayou Pierre - Headwaters to Sawing Lake	Organic enrichment/low DO
100602	Boggy Bayou - Headwaters to Wallace Lake	Organic enrichment/low DO
100702	Black Lake Bayou - Webster-Bienville Parish Line to Black Lake (Scenic)	Organic enrichment/low DO
100703	Black Lake and Clear Lake	Organic enrichment/low DO
100803	Saline Lake	Organic enrichment/low DO
101301	Rigolette Bayou - Headwaters to Red River	Organic enrichment/low DO
101302	Iatt Lake	Organic enrichment/low DO
101503	Old Saline Bayou - from Saline Lake to Red River	Organic enrichment/low DO
101604	Lake Concordia	
Sabin River Basin (11)		
110401	Bayou Toro - Headwaters to La. Hwy. 473	Organic enrichment/low DO

LDEQ for purposes of evaluating the following waters for the Integrated Report placed these waters in Category 3 until such time as more normal [non-drought] conditions returned or a Use Attainability Analysis³ (UAA) could be completed. Furthermore, [a]llowances will be made for situations where low dissolved oxygen concentrations or other water quality conditions attributable to natural causes are at variance with the standard. To allow for such situations, the numerical criteria will not be applied below the 7Q10 or other appropriate critical flow as defined in LAC 33:IX.1115.C.” See LAC 33:IX.1107.B. Since LDEQ provided no specific sub-segment information to support the non-support due to natural conditions [below critical flow] and non-support sub-segments cannot be placed in Category 3 in anticipation of either planned or anticipated UAAs, EPA assessed all DO information for the sub-segments identified using the

³Use attainability analysis is a structured scientific assessment of the factors effecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in §131.10(g). See 40 CFR §131.3(g) Definitions.

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Exact Binomial Test for Minimum Dissolved Oxygen described above. Using the Exact Binomial Test for Minimum Dissolved Oxygen, EPA has determined that the following sub-segments should be listed as impaired for DO based on a finding of non-support.

Red River Basin (10)		
100301	Black Bayou-Texas State Line to La. Hwy. 1 at Black Bayou Lake	Organic enrichment/low DO
100302	Black Bayou Lake-From La. Hwy. 1 to spillway	Organic enrichment/low DO
100308	Paw Paw Bayou and Tributaries-Texas State Line to Cross Lake	Organic enrichment/low DO
100309	Cross Bayou-Texas State Line to Cross Lake	Organic enrichment/low DO
100403	Cypress Bayou-Headwaters to Cypress Bayou Reservoir	Organic enrichment/low DO
100603	Wallace Lake	Organic enrichment/low DO
100709	Grand Bayou-Headwaters to Black Lake Bayou	Organic enrichment/low DO
100802	Saline Lake	Organic enrichment/low DO
100901	Bayou Nantaches-Headwaters to Nantaches Lake	Organic enrichment/low DO
101501	Big Saline Bayou-Catahoula Lake to Saline Lake	Organic enrichment/low DO
101505	Larto Lake	Organic enrichment/low DO
Sabin River Basin (11)		
110502	East Anacoco Creek-Headwaters to Vernon Lake	Organic enrichment/low DO

Priority Ranking and Targeting

EPA also reviewed the State's priority ranking of listed waters for TMDL development, and concludes that the State properly took into account the severity of pollution and the uses to be made of such waters. The State's priority ranking falls into seven categories consistent with the Consent Decree Attachment A schedule.

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In addition, EPA reviewed the State's identification of WQLSs targeted for TMDL development in the next two years, and concludes that the targeted waters are appropriate for TMDL development in this time frame. EPA concludes, that the State's priority ranking and targeting commitments are consistent with federal requirements and Consent Decree commitments.

Administrative Record Supporting This Action

In support of this decision to approve the State's listing decisions, EPA carefully reviewed the materials submitted by the State with its 303(d) listing decision. The administrative record supporting EPA's decision is comprised of the materials submitted by the State, copies of section 303(d), associated federal regulations, and EPA guidance concerning preparation of section 303(d) lists, and this decision letter and supporting report. EPA determined that the materials provided by the State with its submittal provided sufficient documentation to support our analysis and findings that the State listing decisions meet the requirements of the Clean Water Act and associated federal regulations. We are aware that the State compiled and considered additional materials (e.g., raw data and water quality analysis reports) as part of its list development process that were not included in the materials submitted to EPA. EPA did not consider these additional materials as part of its review of the listing submission. It was unnecessary for EPA to consider all of the materials considered by the State in order to determine that, based on the materials submitted to EPA by the State, the State complied with the applicable federal listing requirements. Moreover, federal regulations do not require the State to submit all data and information considered as part of the listing submission.