Revisions to Connecticut Water Quality Standards

Hearing Officer's Report

Denise Ruzicka
Director
Inland Water Resources Division
Bureau of Water Protection and Land Reuse
January 4, 2011

Table of Contents

I. Introduction to the Hearing Officer's Report

The Hearing Officer's Report for the Proposed Changes to the Connecticut Water Quality Standards is the culmination of the public process that the Connecticut Department of Environmental Protection (CTDEP) initiated to review and revise, as necessary, the Connecticut Water Quality Standards. The purpose of the Hearing Officer's Report is to provide recommendations to the Commissioner of the Department of Environmental Protection for the final revisions to the Connecticut Water Quality Standards for her review and approval. In support of the Commissioner's review, this document provides background information on the Water Quality Standards and the state and federal processes for proposing revisions to the Water Quality Standards, as well as identifies and responds to public comments received during the revision process.

The Hearing Officer's Report is intended to be a fair representation of revisions and updates to the Water Quality Standards as the result of the public review and hearing process, but in the case of any errors or omissions, the official document entitled "Connecticut Water Quality Standards" as adopted by the Commissioner and approved by EPA should be followed.

Throughout the Hearing Officer's Report, comments received from the public are identified and discussed. Comments are paraphrased for brevity; however, every effort has been made to preserve the original intent of the comment. Where several comments addressed similar issues, the comments are combined and addressed collectively. References to comments within this document include an identifying number from either Appendix A or Appendix C of this report, so that the reader may refer to the original text if desired. Direct reference to the oral public testimony is not made since the comments provided orally during the public hearing were found to be adequately represented by the written comments referenced within this report.

The revision process for the Water Quality Standards incorporated a robust public participation process. Steps and key dates within the public process are identified in Table 1 on the following page.

Table 1: Public Notice Activity for Proposed Revisions to Water Quality Standards

Date	Public Notice Activity
Public Comment Opportunity: Intent to Conduct a Triennial Review of Water Quality Standards	
April 16, 2009	Public Notice of Intent to Conduct a Triennial Review of Water Quality Standards Published in the Connecticut Law Journal
June 11, 2009	Nutrient Reduction Strategy for Inland Fresh Waters: Phosphorus Posted on CTDEP Website
June 22, 2009	Freshwater Nutrient Management Technical Support Document Posted on CTDEP Website
July 15, 2009	Notice of Extension of Public Comment Period: Notice of Intent to Conduct a Triennial Review of Water Quality Standards Posted on CTDEP Website
July 31, 2009	End of Public Comment Period: Notice of Intent to Conduct a Triennial Review of Water Quality Standards
Public Comment Opportunity: Proposed Amendments to Water Quality Standards	
December 22, 2009	Public Notice of Proposed Revisions to Water Quality Standards Published in the Connecticut Law Journal
December 22, 2009	Notice of Proposed Revisions to Water Quality Standards Mailed to Chief Executive Officer for Each Town
December 22, 2009	Publication of Proposed Revisions to Water Quality Standards posted on CTDEP Website
January 11, 2010	Publication of Public Notice of Proposed Revisions to Water Quality Standards Published in the Waterbury Republican, Hartford Courant, and New Haven Register
January 11, 2010	Summary of Proposed Changes to Connecticut Water Quality Standards and Biological Condition Gradient: Frequently Asked Questions Posted on CTDEP Website
January 12, 2010	Publication of Public Notice of Proposed Revisions to Water Quality Standards Published in the Norwich Bulletin
January 13, 2010	Publication of Public Notice of Proposed Revisions to Water Quality Standards Published in the Connecticut Post
January 19, 2010	Powerpoint Presentation on Proposed Revisions of Connecticut Water Quality Standards and technical support document for Proposed Revisions to Dissolved

Date	Public Notice Activity
	Oxygen Criteria for Marine Waters posted on CTDEP Website
January 25, 2010	Second Publication of Public Notice of Proposed Revisions to Water Quality Standards Published in the Waterbury Republican, Hartford Courant, New Haven Register
January 26, 2010	Second Publication of Public Notice of Proposed Revisions to Water Quality Standards Published in the Norwich Bulletin
January 26, 2010	Informational Meeting Held at CTDEP Offices, Hartford CT
January 27, 2010	Second Publication of Public Notice of Proposed Revisions to Water Quality Standards Published in the Connecticut Post
January 29, 2010	Technical support document for Proposed Revisions to Temperature Criteria posted on CTDEP Website
February 2, 2010	Technical Support Document: Proposed Revisions to Connecticut Water Quality Criteria, Appendix A to Technical Support Document: Proposed Aquatic Life Criteria for Chemical Constituents, and Appendix D to Technical Support Document: Proposed Human Health Based Criteria for Chemical Constituents posted on CTDEP Website
February 3, 2010	Public Hearing Held at CTDEP Offices, Hartford CT
February 3, 2010	Public Comment Period Extended Until March 17, 2010
February 3, 2010	Water Quality Criteria Comparison Table and Errata: Proposed Revisions to Connecticut Water Quality Standards, Ambient Water Quality Criteria posted on CTDEP Website
March 12, 2010	Transcript of Public Hearing Posted on CTDEP Website
March 17, 2010	Close of Public Comment Period for Proposed Revisions to Water Quality Standards

II. Water Quality Standards

The Connecticut Water Quality Standards form the foundation of Connecticut's water management programs. Required by Section 303(c) of the federal Clean Water Act, the Water Quality Standards articulate State policies regarding the uses and related classifications of Connecticut's water resources, and the standards and criteria necessary to support such designated uses. The Water Quality Standards provide the context and underpinnings for

environmental programs, informing actions such as National Pollution Discharge Elimination System (NPDES) permit issuance, water quality certification programs, remediation programs, as well as state-led monitoring and assessment programs and Total Maximum Daily Load development, among other programs and activities.

The initial development of the Connecticut Water Quality Standards in 1967 by the Water Resources Commission predates the formation of the federal and state environmental protection agencies. The Water Quality Standards are updated periodically to include the latest scientific understanding of water pollution effects and to accommodate changes in state and federal law. The federal Clean Water Act requires a public review of the Water Quality Standards at three year intervals.

III. Administrative Requirements

The Water Quality Standards are adopted in accordance with both state and federal law. In state law, Section 22a-426 of the Connecticut General Statutes (C.G.S.) provides for the adoption and periodic amendment of the Water Quality Standards and sets forth requirements for the amendment process. Public notice of the proposed amendments must be published in the Connecticut Law Journal and in newspapers of general circulation in the state at least twice in the 30 days preceding the public hearing. Direct notification to the chief executive officer of each municipality is also required. A public hearing must be conducted and the opportunity to present both written and oral testimony provided. A full transcript or recording of the hearing must be made available to the public and kept on record. Notice of amendments to the Water Quality Standards developed after fully considering public comment must be published in the Connecticut Law Journal once the final amended Water Quality Standards are approved by the federal government.

Under federal law the Water Quality Standards must be adopted in accordance with Section 40 CFR 131 of the federal Clean Water Act. States are required to review and revise, as necessary, state Water Quality Standards at least once every three years. States must submit to the U.S. Environmental Protection Agency (EPA) either a statement that revisions to the Water Quality Standards are not necessary based on a review of the current standards or submit a revision to the state Water Quality Standards with supporting materials to identify proposed changes, provide the methods used and analyses conducted to support the proposed revisions and identify the scientific basis for the proposed revisions. Additionally, the proposal must provide for water quality criteria that are sufficient to protect designated uses of the waters as well as an Antidegradation Policy consistent with federal requirements. A public hearing must be held

to provide for public participation and input into the revision process. The final proposed revisions to the Water Quality Standards that are submitted to EPA for review and approval must be accompanied by a certification in accordance with 40 CFR 131.6 that the Water Quality Standards were adopted pursuant to state law.

Under the federal rules, Water Quality Standards, and by extension, water quality criteria, must meet the requirements of the federal Clean Water Act which as defined under Section 101(a) of the federal Clean Water Act includes:

- Restoration and maintenance of the chemical, physical, and biological integrity of the Nation's waters;
- Protection and propagation of fish, shellfish, and wildlife and provide for recreation in and on the water;
- Prohibition of the discharge of toxic pollutants in toxic amounts; and
- Facilitation of implementation of the Clean Water Act through the control of both point and nonpoint sources of pollution.

For water quality criteria, these requirements, in conjunction with other sections of the Clean Water Act, provide clear direction to the states. EPA established implementing regulations for water quality standards in 40 CFR 131. In regulation, EPA clarifies that water quality criteria can be either narrative or numeric. Connecticut, consistent with federal requirements (Section 101(a)(3)), has previously adopted and maintains a narrative standard (Water Quality Standards 12 and 14) to prevent toxic substances to be present in toxic amounts. In addition, various EPA guidance clarifies that federally published water quality criteria are guidance only, a starting point, to be used by states in developing appropriate water quality criteria to be included in each state's Water Quality Standards.

IV. Comments Received Pursuant to the Notice of Intent to Revise the Water Quality Standards

The initial step in the revision process was to evaluate the necessity of revising the existing Connecticut Water Quality Standards, dated December 17, 2002. On April 16, 2009, a public comment period was opened requesting input regarding topics that should be considered for review and revision of the Water Quality Standards. Within that notice, CTDEP identified its intent to review and revise the Water Quality Standards, as necessary, to remain consistent with state and federal law and to ensure that the Water Quality Standards continue to reflect the best available science and support sound water quality management policies to protect and improve where necessary the water resources of the State. The notice included a preliminary

list of topics CTDEP was considering for revision, including the antidegradation provisions of the Water Quality Standards, dissolved oxygen criteria for marine waters, a nutrient control implementation strategy and updating the criteria for toxics pollutants.

Although this initial public comment period was not required by any state or federal rule, the CTDEP sought to provide the public early input into the revision process, especially in light of the fact that revisions to the Water Quality Standards had not occurred since 2002. The opportunity to comment was extended through July 31, 2009, at the request of the public and ultimately a period of more than 100 days was provided for input regarding issues to be considered during the review and revision to the Water Quality Standards. Written comments were received from 13 individuals and organizations, representing concerned citizens, environmental groups, trade organizations and municipalities. The public comments received during this time period were posted on the CTDEP website and formed the basis for many of the revisions proposed in the amendments to the Water Quality Standards. A list of those who provided comment is included in Appendix A of this report. The major points identified in the comments are enumerated below and the comment number from which it came is listed in parentheses after each.

A. The water quality criteria need to be updated. Criteria should be adopted to protect ecological populations in addition to providing protection to human health and should consider additional biological endpoints such as endocrine disruption and neurotoxicity. (2, 7)

B. The definition of the term "natural" should be revised. Currently the definition as expressed in Standard 8 links natural conditions to environmental conditions resulting from implementation of economic and institutional considerations. The definition of natural conditions should be made separate from such implementation concerns, which can be considered through other regulatory processes. (2, 7, 12)

C. A numerical water quality based criterion for phosphorus should be adopted by CTDEP and incorporated into the Water Quality Standards. The proposed phosphorus strategy is not consistent with federal Clean Water Act goals and will not adequately protect designated uses and water quality in Connecticut. (4, 7, 9, 11)

D. The antidegradation provisions in the Water Quality Standards should be reviewed and revised to conform to the requirements of the federal Clean Water Act. In particular, the Department should consider establishing a three-tiered approach to implementing the Antidegradation Policy; evaluate the consideration of economic and social

development on a local or state level; and review the need to designate any Outstanding National Resource Waters. (7, 9)

E. Comments were provided on criteria for individual constituents, including nonylphenol (criteria should be adopted) and dissolved oxygen (not realistic in stratified lakes). (1, 12)

F. Standard 10, which addresses the allocation of Zones of Influence, should be reviewed and greater numerical precision provided. CTDEP should also develop a tool which allows the agency and the public to review all the allocations which have been made for any water body. (7)

G. Phosphorus removal and bacterial sanitization of permitted discharges should be implemented through the full course of a year to protect water quality. Excessive amounts of phosphorus and bacteria have been observed in surface waters downstream of sewage treatment plants when the facilities are not actively removing phosphorus or disinfecting the effluent, respectively. (3, 6)

H. A narrative standard should be adopted which states that minimum flows for surface water bodies should be maintained in support of existing and designated uses for the water body. (6, 7)

I. Standard 21, which pertains to surface waters identified as potential drinking water supplies, should be clarified to include surface waters identified as potential drinking water supplies in Water Supply Plans approved pursuant to Section 25-32d of the Connecticut General Statutes. (12)

J. The guidelines for evaluating the trophic status of lakes should be reviewed to reduce subjectivity of the recommended parameter ranges and be consistent with other published sources. (12)

K. CTDEP should consider applying the more stringent of the aquatic life criteria for fresh water and marine waters to surface water bodies with a salinity of 1 ppt or less. (13)

L. The list of water bodies in which the Connecticut site-specific copper criteria are applied should be expanded to include Indian Lake Creek and the Pootatuck River. (8, 11)

M. The temperature criteria should be revised to be protective of native fish populations, including trout. (6, 9)

V. Summary of Proposed Revisions to Water Quality Standards as Public Noticed

After conducting a review of the existing Water Quality Standards (December 17, 2002) and considering initial public comments, the Department proposed revisions to the Water Quality Standards in December of 2009. The proposed revisions included general changes to improve the organization and clarity of the document and an update of definitions and regulatory references. Proposed substantive changes included:

Standards 2-4: Changes to the Antidegradation Policy for consistency with federal regulatory requirements, including consideration of economic and social impacts on a local level.

Standard 9: Changes to Standard 9 to create a narrow exemption to allow a discharge of domestic sewage to either Class A or SA waters if the discharge currently exists at that location and is necessary to remediate a pollution problem which cannot be solved by redirecting the discharge to a sewage treatment plant or providing for complete assimilation in groundwater at the site.

Standard 10: Changes to Standard 10 to update regulatory references and provide additional considerations when establishing a Zone of Influence.

Standard 11: Changes to clarify Standard 11, including the use of flow conditions at low tide for application of Water Quality Standards and criteria unless otherwise approved by the Commissioner.

Standard 12: Changes to Standard 12 to clarify the intent under the Clean Water Act to establish a means to implement narrative standards, similar to that in Standard 14.

Standard 16: Changes to include consideration of the Biological Condition Gradient for varying ecological populations as a measure of environmental health.

Standard 19 and Narrative Nutrient Criteria: Changes to strengthen the linkage between acceptable environmental loading of nutrients and attainment of designated uses for any waterbody.

Temperature Criteria: Changes to the temperature criteria for all surface waters for consistency with federal recommendations and to provide improved protection of native fish populations.

Lake Trophic Categories: Changes for clarity and to include consideration of macrophyte within the assessment of current lake trophic status.

Appendix B - Water Quality Criteria for Bacterial Indicators of Sanitary Quality: Changes to update bacteria criteria in saltwater protective of shellfishing and to provide reference to the analytical methodology specified by the U.S. Food and Drug Administration National Shellfish Sanitation Program.

Appendix C - Dissolved Oxygen Criteria for Marine Waters: Changes to the numerical criteria for dissolved oxygen in marine waters for consistency with federal criteria. Changes to the areas in which the criteria apply. The change aligns Connecticut's dissolved oxygen criteria with New York State Water Quality Standards, which will facilitate application of the Long Island Sound Total Maximum Daily Load.

Appendix D - Numerical Water Quality Criteria for Chemical Constituents: Changes in accordance with EPA guidance including updating existing water quality criteria, adding additional criteria, expanding the application of site specific criteria for copper, providing methodology for calculating additional criteria and updating table notes.

Appendix E - Antidegradation Implementation Policy: Restructuring and updating the policy for consistency with current EPA guidance.

VI. Statement of Principal Reasons in Support of the Proposed Revisions to the Water Quality Standards

The Water Quality Standards provide a voice for the public to identify environmental values and conditions that are important to the people of Connecticut. These values, when supported by sound science, allow for environmental protection and management consistent with public goals and desires.

The current Water Quality Standards, made effective in April, 2002, were the product of a public process conducted at that time. Since then, there have been significant improvements in the science upon which the Water Quality Standards are based. Additionally, within that time period, citizens of the State have identified concerns about the management of our water resources which needed to be examined within the context of state policies, standards and criteria. Conducting a public review and proposing revisions to the Water Quality Standards allows for the document to remain a living expression of public values and desires for management of our aquatic resources.

The proposed revisions were made available to the public on December 22, 2009. Technical documentation of the changes was posted on the CTDEP website, information sessions were

provided and a public hearing was held on February 3, 2010. In addition, a document identifying typographical errors, inadvertently omitted text, or other minor corrections to the December 22, 2009 document was posted on the website on February 3, 2010. A request was made to extend the public comment period, and the hearing was held open until March 17, 2010. Nine individuals provided oral comment at the hearing, and twenty-five comment letters were received.

Comments in support of the proposed revisions to the Water Quality Standards generally focused on three main topics: improvement in the clarity of the document; improved consistency with EPA requirements; and the level of water quality protection provided by the proposed revisions. A list of those who provided comments is included in Appendix C of this report.
The principal reasons cited in support of the revisions as proposed at the public hearing are enumerated below and the comment number from which it came is listed in parentheses after each.

A. The organizational changes to the Water Quality Standards improve the clarity of the document without affecting the intent of the Standards. (53)

B. The restructuring and updating of Connecticut's Antidegradation Implementation Policy is supported. (53) The revised Antidegradation provisions expressed in terms of "tiers" similar to EPA is an improvement and enhances the clarity of the revised policy. (24, 28, 58)

C. Making fecal coliform criteria more stringent to protect shellfishing for direct human consumption enhances the Water Quality Standards. (53)

D. The use of the 6-tier stressor gradient is strongly supported because it will improve the ability to track long term changes in water quality and conditions over time. (41, 44) The proposed narrative biocriteria will provide a useful tool for water quality protection in Connecticut. The proposed structure will be amenable to future quantification in terms of numeric biocriteria, and implementation in terms of multiple biological assemblages (e.g. macroinvertebrates, fish, and algae). (53) The proposed revisions to include the Biological Condition Gradient will complement the continued efforts to restore the Norwalk River Watershed system. (56)

E. Changing from a spilt classification (B/A for example) to one that displays the goal only (A for example) is beneficial, as this will clarify management strategies and expectations for regulated uses. (41)

F. The dissolved oxygen criteria should apply to estuaries as proposed. (44) The use of the EPA recommendations for dissolved oxygen concentration in saltwater as proposed supports a consistent application of marine criteria for dissolved oxygen throughout Long Island Sound and will complement the continued efforts to restore the Norwalk River Watershed system. (56)

G. Including the consideration of macrophytes in the Lake Trophic Standards is supported. (44)

H. The new approach to temperature requirements, which establishes three major classes of fish based on thermal tolerance and sets temperature requirements for each class, is an improvement, and the addition of a cool water class is supported by recent literature. (53) The proposed revisions to numeric criteria for temperature will complement the continued efforts to restore the Norwalk River Watershed system. (56) The proposed revision to the water temperature criteria represents a protective and substantial improvement over CTDEP's current temperature criteria. (55)

I. Incorporating numerical limits for Zones of Influence is an improvement. (28)

J. Updating of the water quality criteria for toxic substances to reflect the latest science is supported. (58) The proposed revisions to numeric criteria for toxic pollutants will complement the continued efforts to restore the Norwalk River Watershed system. (56)

VII. Statement of Principal Reasons in Opposition to the Proposed Revisions to the Water Quality Standards and the Department's Response to Such Reasons

The strongest opposition to the proposed revisions to the Water Quality Standards focused on two aspects: (1) the administrative procedures for adopting revisions to the Water Quality Standards; and (2) the anticipated impact to the regulated community vis-à-vis the relationship between the Water Quality Standards and the Remediation Standard Regulations (RSRs). These comments are discussed below. Additional concerns regarding the scientific and technical underpinnings of the proposed revisions and consistency with federal requirements were also provided and are presented within the summary of detailed comments presented in Section IX of this report.

Comment:

- The public comment period is insufficient to allow for review of the proposed revisions to the Water Quality Standards. Additionally, the supporting documentation was not available in all cases during the initial phases of the public comment period. The

Department should consider withdrawing the proposed revisions or providing an extension to the public comment period to allow for greater public review. (21, 22, 26, 27)

Response:

Notice and comment periods met or exceeded state and federal requirements. In addition, in response to a request, an extended time period for review was provided. CTDEP solicited input on topics to be considered in the revisions in an initial comment period that lasted 100 days, not required by any statute or law. The public comments received during this time period were posted on the CTDEP website and formed the basis for many of the revisions currently put forth in the proposed amendments to the Water Quality Standards.

CTDEP published the formal proposal for revisions to the Water Quality Standards on December 22, 2009, held a public informational session, public hearing and extended the comment period through March 17, 2010 at the request of the public, which provided a comment period totaling 86 days. CTDEP did not receive any requests to further extend the comment period. An extensive amount of supporting documentation was provided to the public, in written format accessible on-line. The Department acknowledges that not all technical support information was posted on the CTDEP website and made available to the public at the same time. In this case, CTDEP provided 86 days for reviewing the proposed revisions, more than 200 days for review of nutrient related documentation and between 66 to 44 days of review for all other remaining support documents (see table below). Additionally, the Department made staff available for further discussion or presentation of issues pertinent to the revision of the Water Quality Standards at the request of the public. For example, Department staff made presentations to the Maritime Commission and the Environmental Policies Council of the Connecticut Business and Industry Association at the request of those organizations.

The request to withdraw the Water Quality Standards was carefully evaluated. As the process to revise the Connecticut Water Quality Standards met state and federal requirements for such revision, and substantial opportunity for review and comment were provided, the hearing officer determined it was not necessary to withdraw the Water Quality Standards. In response to comments at the public hearing about inadequate time provided to review the technical support documents, the hearing officer extended the public comment period from February 15, 2010 to March 17, 2010. The extension in the public comment period provided additional time for the public to review and comment on the proposed Water Quality Standards, and additional time to review the technical support documents made available after the proposed revisions to the Water Quality Standards were publicly noticed and before the public hearing was held. The comment period as extended provided a minimum of 44 days to review and comment on all documents.

The table following identifies the number of days available for public review of proposed Water Quality Standards and technical support documents inclusive of the public comment extension.

Date Posted on DEP Website	Document	Number of Days for Review of Document
June 11, 2009	Nutrient Reduction Strategy for Inland Fresh Waters: Phosphorus posted on CTDEP Website	280 days
June 22, 2009	Freshwater Nutrient Management Technical Support Document posted on CTDEP Website	269 days
December 22, 2009	Proposed Revisions to Connecticut Water Quality Standards	86 days
January 11, 2010	Summary of Proposed Changes to Connecticut Water Quality Standards	66 days
January 11, 2010	Biological Condition Gradient: Frequently Asked Questions	66 days
January 19, 2010	Presentation on Proposed Revisions of Connecticut Water Quality Standards	58 days
January 19, 2010	Technical support document for Proposed Revisions to Dissolved Oxygen Criteria for Marine Waters	58 days
January 29, 2010	Technical support document for Proposed Revisions to Temperature Criteria posted on CTDEP Website	48 days
February 2, 2010	Technical Support Document: Proposed Revisions to Connecticut Water Quality Criteria with Appendices	44 days

Comment:

- CTDEP is not following a process that is consistent with federal requirements and is acting contrary to state law by refusing to issue the Water Quality Standards as regulations subject to the Uniform Procedures Policy Act. (21, 42, 46)

Response:

In addition to any state requirements, the adoption and revision of state's water quality standards are subject to section 303(c) of the federal Clean Water Act, 33 U.S.C. § 1313 (c) and 40 CFR Part 131. The Department has satisfied these requirements and the commenter has not identified in what respect the process followed by the Department is not consistent with these federal requirements.

With respect to the other issue raised by the commenter, it is the Department's position that the provisions of the Uniform Administrative Procedures Act ("UAPA"), C.G.S. Section 4-166 et seq., do not apply to the revisions to the water quality standards currently under consideration. Both the text of C.G.S. Section 22a-426 and the previous amendment to this statute make this clear.

The adoption and amendment of the state's water quality standards is governed by C.G.S. Section 22a-426. Before the enactment of Public Act 90-222, Section 22a-426(a) provided that the Commissioner may adopt and amend the water quality standards "as provided for in subdivision (1) of Section 22a-6." The Department understands this reference to mean C.G.S. Section 22a-6(a)(1), even though subsection (a) was not mentioned in the statute. This reference to subdivision (1) of Section 22a-6 appeared to be a reference to the rule-making requirements of the UAPA. At the time, Section 22a-6(a)(1) stated that the "Commissioner may (1) adopt, amend or repeal, in accordance with the provisions of chapter 54, such environmental standards, criteria and regulations, and such procedural regulations as are necessary and proper to carry out his functions, powers and duties."

Public Act 90-222 deleted the reference to "subdivision (1) of Section 22a-6" from Section 22a-426(a) and replaced it with "this section". As amended by Public Act 90-222, C.G.S. Section 22a-426 states that the Commissioner may adopt and amend the water quality standards as provided for in Section 22a-426, not as provided for in Section 22a-6(a)(1). Subsection (b) of C.G.S. Section 22a-426 specifies the procedure for the adoption or amendment of a water quality standard. If the General Assembly had intended that the Commissioner adopt or amend the water quality standards through the procedures specified in the UAPA it would have not have specifically deleted the reference to C.G.S. Section 22a-6(a)(1) from Section 22a-426(a), nor would it have been necessary for the legislature to specify procedures, in Section 22a-426(b), for the adoption or amendment of a water quality standard. Consistent with the current text of C.G.S. Section 22a-426(a), the Department adopts or amends the water quality standards through the process set out in Section 22a-426 not that set out in the UAPA.

The Department would also note that the procedure specified in C.G.S. Section 22a-426(b) is very similar to that required by the UAPA. In this case, the amendment process included public meetings, notification of all chief elected officials, notice in the Connecticut Law Journal, opportunity for public comment, including a public hearing, and the preparation of a hearing report addressing public comments received. In addition, with the recent passage of Public Act 10-158, after March 1, 2011, future revisions to the water quality standards will need to be made in accordance with the provisions of the UAPA (Public Act 10-158, § 9.) Clearly, there would have been no need for this amendment if the current law already imposed this requirement.

For all these reasons, CTDEP does not agree with the commenter that the process being followed for the revisions to the water quality standards under consideration is not consistent with federal requirements or that the Commissioner must use the process specified in the UAPA regarding such revisions.

Comment:

- C.G.S. Section 22a-426 mandates that "[s]uch standards shall be consistent with the federal Water Pollution Control Act..." It appears that dozens or perhaps hundreds of CTDEP's proposed standards are not consistent with those adopted under the federal program. (21)

Response:

Under the Federal Water Pollution Control Act ("FWPCA") when a state like Connecticut revises its water quality standards, the state must send the revisions to EPA for review and approval or disapproval. 33 U.S.C. § 1313(c). When evaluating the state's submission EPA will determine, among other things, whether the State's standards are consistent with federal requirements. Id and 40 CFR 131.5(a). The issue of "consistency" raised by the commenter apparently concerns the adoption of water quality standards that are either more stringent than those published by EPA or concern chemicals for which no federal standard has been established. While EPA would not approve a water quality standard or criterion that was not consistent with the FWPCA, with respect to the matter raised by the commenter, the FWPCA is clear. Under 40 CFR 131.4(a), states may develop water quality standards more stringent than those required under federal regulations. See also 33 U.S.C. § 1370 (authorizing a state to enforce any standards or limitation not part of the federal program). In fact, the current Water Quality Standards (2002) – which were approved by EPA – already include provisions which are more stringent than those published by EPA.

Moreover, the federal Water Quality Standards Handbook, which provides guidance to states as they implement the federal requirements for establishing and updating state Water Quality Standards, indicates that where possible, the state should adopt water quality criteria for substances that may be released in the waters of the state and which may affect attainment of designated uses. Since the circumstances in each state may be different, the standards each state adopts need to be tailored to the needs of each state. CTDEP, in an effort to address water quality concerns present in this state proposed new or updated water quality criteria for substances that based upon the Department's experience in the water discharge permitting program and the remediation program have been or are being released to surface waters in the state. The proposal took into account the circumstances in Connecticut and the requirement under section 22a-426 that "no standard of water quality adopted shall plan for, encourage or permit any wastes to be discharged into any waters of the state without having first received

the treatment available and necessary for the elimination of pollution." Even though the proposals were not identical to the water quality standards published by EPA, the 2009 proposals for updating the water quality criteria within the Water Quality Standards followed the published EPA guidance for establishing criteria and is wholly consistent with EPA recommendations for establishing water quality criteria.

For all these reasons, the standards proposed by the Department are clearly consistent with the FWPCA. However, in response to public comments, CTDEP is postponing the majority of the proposed updates to the water quality criteria. As required by EPA, CTDEP is adopting updated water quality criteria for those substances currently contained in the 2002 Water Quality Standards for which more restrictive federal criteria have been published, since 2002, pursuant to section 304(a) of the federal Clean Water Act. In addition, CTDEP is adopting criteria for three additional pollutants. In the 2009 proposal, as public noticed, 89 new chemicals were proposed for addition to the Water Quality Standards. Based upon public comment, the Department has decided to proceed with adopting standards for only 3 new chemicals, chloride, aluminum, and formaldehyde. The reasons for adopting standards for these three chemicals are discussed further in Section IX of this report. The Department is not adopting, at this time, criteria for any other new chemical included in the 2009 proposal.

Finally, CTDEP will continue, as required by the Clean Water Act, to translate the "no toxics in toxic amounts" principle into regulatory activities subject to the Clean Water Act on a case by case basis as is currently done.

Comments:

- Using the amendments to the Water Quality Standards to significantly revise remediation standards in the Remediation Standard Regulations (RSRs) (including the numeric standards incorporated or referenced therein), including standards applicable to remediation work already done or underway, is inappropriate and inconsistent with the statutory requirements applicable to promulgation of state environmental cleanup regulations under C.G.S. Section 22a-133 k. Using this process avoids many of the procedural requirements applicable to revising the RSRs (which are required to be done in accordance with the provisions of Chapter 54, the Uniform Administrative Procedure Act), thereby eliminating the public's opportunity for meaningful review and comment and ability to institute legal challenges when appropriate. (48)
- Section 22a-133k-3(b)(2) of the 1996 RSRs requires the groundwater plumes discharging to a wetland or intermittent stream to be remediated to a concentration equal to or less than the applicable aquatic life criteria contained in Appendix D to the most recent

Water Quality Standards. Remediation of groundwater to surface water quality criteria is overly conservative and technically flawed. Additionally the language in the existing RSRs ties in the latest Water Quality Standards by rule. This could potentially create new criteria for numerous compounds in an arbitrary manner with no opportunity for comment. (46)

- The proposed amendments to the Water Quality Standards will affect not only the water discharge permitting program but also remedial programs that address mitigation of releases to the environment pursuant to the Connecticut RSRs. Application of these revised water quality standards under RSR-guided remedial programs would be detrimental to the success of environmental remediation programs in Connecticut. These new standards would be more difficult and costly to meet, resulting in fewer remediation projects being initiated or completed. In some cases (discharges to wetlands for example) it may not be remediated to Surface Water Protection Criteria due to economic considerations or technical impracticability. It would also diminish or eliminate the value of costly environmental remediation work already undertaken. Any application of the revised Water Quality Standards to RSR remediation programs should be done only after such proposed standards have been fully vetted with the public and regulated community, with due consideration given to potential environmental, social and economic impacts and following the applicable procedural requirements of Connecticut General Statutes Chapter 54. Additionally, revised standards should be phased in so as not to invalidate the actions at remediation sites that are well advanced through the process. (48)

Response:

In response to these comments, CTDEP notes that it is proposing revisions to the Appendix D of the Water Quality Standards. As a result of revisions to Appendix D the requirements for water discharge permitting, and to a limited degree, the requirements for certain environmental clean-ups, will change. This result is intended; if the revisions to the Water Quality Standards did not have any such impacts there would be little reason to make any revisions.

Commenters have focused particular attention on section 22a-133k-3(b)(2) of the state's remediation standard regulations ("RSRs"). This provision provides, in pertinent part, that certain ground water plumes that discharge to a surface water body "shall be remediated to a concentration equal to or less than the applicable aquatic life criteria contained in Appendix D to the most recent Water Quality Standards…" or an alternative criterion specified in the regulation. When the criteria in Appendix D change, as they did in 2002 when Appendix D was last revised, the corresponding remediation requirement in section 22a-133k-3(b)(2) likewise changes.

This does not mean, as the commenters claim, that a change in Appendix D of the Water Quality Standards is subject to the rulemaking procedures specified in the Uniform Administrative Procedures Act, Conn. Gen. Stat. § 4-166 et seq ("UAPA"). The Department has already discussed why the current revisions to the Water Quality Standards, including those to Appendix D, are not subject to the rulemaking provisions of the UAPA as discussed previously in this section. Moreover, it is clear that the Department is not proposing any revision to the actual language of section 22a-133k-3(b)(2). As such, the rulemaking provisions of the UAPA are not implicated.

It appears that the commenters real concerns are with the language of section 22a-133k-3(b)(2), in particular, that portion of the rule which makes reference to Appendix D of "the most recent Water Quality Standards". The use of the phrase "the most recent Water Quality Standards," clearly contemplates using the most current standards, not standards that are outdated or have been superseded. This language of the rule has been duly adopted and the Department would have to undergo formal rulemaking to make a change to this provision. At this time the Department has not initiated any such rulemaking.

For all of these reasons, the Department cannot agree with the commenters who argue that the revisions to Appendix D of the Water Quality Standards can only be accomplished using the rule-making procedures under the UAPA. As was the case in the past when Appendix D was last revised, when revising the Water Quality Standards, the Department intends to use the process applicable to such revisions.

Given, however, given the overall concerns raised especially about the numeric criteria for chemical constituents, and the need for further stakeholder input and opportunity to review and understand the implication of any updated numeric criteria, CTDEP is postponing the majority of updates to the numeric criteria for chemical constituents until such time as both the water quality criteria and any associated RSR regulation changes can be further evaluated and addressed as appropriate.

Comment:

- Proposed revisions to Standards 4 and 10 of the Water Quality Standards appear to broaden CTDEP's intended scope of coverage to ensure that groundwater plumes discharging to surface waters regulated under the RSRs will be affected by these amendments. (48)

Response:

Changes were made to Standard 4 for clarity. The current state Antidegradation Implementation Policy and federal antidegradation regulations are not limited to NPDES discharges; therefore, the language of Standard 4 was modified to be more general. Changes

were proposed to Standard 10 to acknowledge that within the RSRs there is allowance for an allocation of surface water dilution for the assimilation of groundwater plumes. Prior to the proposed revisions to the Water Quality Standards, the establishment of a surface water allocation for groundwater assimilation was not specifically identified in the Water Quality Standards. Therefore, language has been incorporated into the Water Quality Standards in Standard 10 specifically to allow for the consideration of dilution with respect to groundwater discharges consistent with existing practices. Such practice provides additional flexibility for site cleanups.

Comment:

- Treatment facilities may not be able to meet the criteria for compounds that did not previously have criteria in the Water Quality Standards. (22)

Response:

After the Water Quality Standards are finalized through both state and federal review processes, culminating with approval from EPA, the standards and criteria contained within the Water Quality Standards are implemented through various regulatory programs administered by CTDEP. CTDEP, in accordance with both state and federal law, must insure that regulatory actions are untaken in a manner that is protective of water quality, however, there is no need or legal requirement to impose water quality based requirements or limits in cases where such limits or requirements are not necessary. Within the context of the NPDES permitting program, for example, state and federal laws require that effluent limitations must be established based on technology standards broadly applicable to general classes of discharges, independent of any environmental concern. Additionally, treatment and effluent limitations are required for the protection of water quality only when such effluents would have a reasonable potential to cause or contribute to a condition that exceeds water quality standards and criteria, thereby potentially affecting attainment of designated uses within the receiving water body. As such, the Water Quality Standards are considered through regulatory implementation programs, and are only implemented when necessary to protection water quality and designated uses within Connecticut.

Comment:

- The proposed criteria for some of the chemicals are orders of magnitude below laboratory method detection limits which can be achieved using current laboratory technology. Specifying a regulatory criterion below the achievable analytical limits provides no mechanisms for assessment or compliance monitoring. (46)

Response:

States must adopt criteria for toxic pollutants sufficient to protect designated uses pursuant to federal regulations (40 CFR 131.11(a)(2)). Such criteria are typically developed using controlled exposure trials where test exposures are created by dilution of known doses. Therefore, a dose causing an adverse outcome may be less than laboratory detection limits. In addition, criteria may include a safety factor, for example to account for variability in ambient conditions, which would lower the criteria below the tested exposure outcome. Water quality criteria are not adjusted to reflect achievable analytical limits since this would not be protective of designated uses. Analytical achievability is taken into account in implementation of the various regulatory programs. For example, in the course of issuing an NPDES permit, water quality based limitations are calculated based on the water quality criteria, but compliance is determined based on analytical achievability for limitations set at a lower concentration than can be routinely achieved by contract laboratories. This analytical performance standard within an NPDES permit is called the Minimum Level.

VIII. Summary of Major Revisions to the Proposed Water Quality Standards as a Result of Public Comment

During the public comment period, 59 exhibits were entered into the public record including twenty-five written comments from citizens, environmental groups, trade organizations and the business and consulting communities (Appendix C of this report) and oral testimony was provided at the hearing by nine persons (Appendix D of this report). There was a wide range of comments, many of them specific and technical in nature. The recommendations in the majority of these comments have been incorporated into the revised Water Quality Standards and more detail is provided in Sections VIII and IX of this report. There are several substantial changes to the proposed Water Quality Standards in response to public comment that are highlighted below.

Numerical Water Quality Criteria for Chemical Constituents

CTDEP proposed updates to the numeric water quality criteria pursuant to federal requirements of the Clean Water Act and associated federal guidance. While the proposed revisions were consistent with those requirements and with guidance established by the EPA for developing water quality criteria, the CTDEP acknowledges strong public sentiment to allow for additional dialogue concerning the derivation of such criteria and the ultimate implementation of these criteria into regulatory programs. Therefore, CTDEP is not moving

forward at this time with the revisions to the water quality criteria as proposed in December 2009, but will make a minimal number of changes as listed below. Additional information is provided in Section IX Number 15 Numeric Criteria for Chemical Constituents. Tables comparing the updated 2011 water quality criteria with those in the 2002 Water Quality Standards and the proposed 2009 revisions to the Water Quality Standards are presented in Appendices E and F to this report, respectively.

- In the 2009 proposal as public noticed, 89 new chemicals were proposed for addition to the Water Quality Standards. The 2011 proposed revisions incorporate only three additional chemicals (aluminum, chloride and formaldehyde) as proposed in 2009, consistent with federal guidance or peer reviewed publications. These three were included because they are the subject of common inquiries concerning aquatic toxicity.

- CTDEP is adopting updated water quality criteria for only those substances currently contained in the 2002 Water Quality Standards for which more restrictive federal criteria have been published pursuant to section 304(a) of the federal Clean Water Act.

- Aquatic life criteria remain relatively unchanged from 2002 except for the establishment of 3 additional chemical constituents as noted above, and revision of criteria for 3 chemical constituents (cadmium, silver, and acrolein).

- Proposed revisions to the notes to the table of water quality criteria within Appendix D of the Water Quality Standards are retained or updated for consistency with federal guidance.

- Table 2 in Appendix D of the Water Quality Standards as public noticed has been deleted.

- Proposed revisions to Water Quality Standard 12 have been retained, although the language was modified for clarity and consistency with the removal of portions of the proposed table notes for Appendix D of the Water Quality Standards.

<u>Nutrients</u>

The narrative standard for nutrients within the Water Quality Standards has been revised to better reflect the intent to protect and maintain designated uses for surface waters from the effects of excessive anthropogenic inputs of nutrients. CTDEP has concluded that there is insufficient information currently available to support adoption of biologically based numeric nutrient criteria. While CTDEP continues to work towards deriving appropriate numeric criteria,

the narrative standard will continue to provide protection of water quality consistent with federal requirements.
Accordingly, Appendix F in the proposed 2009 revisions to the Water Quality Standards (Nutrient Criteria and Implementation Policy) has been removed. CTDEP will consult with stakeholders while continuing to work with EPA in developing appropriate implementation strategies, and ultimately numeric criteria.

Temperature

CTDEP is withdrawing proposed changes to temperature criteria and will continue to utilize the standards and criteria in the 2002 Water Quality Standards. The current standard prohibits changes from natural conditions that would impair any existing or designated uses, as well as a numeric temperature limit and the limitation that temperature of surface water not be increased more than $4^{O}F$. Additional information is provided in Section IX Number 21 Temperature Criteria.

Natural

A definition of the term "natural" has been added to the Water Quality Standards and is limited to the biological, chemical and physical conditions and communities that occur within the environment which are unaffected or minimally affected by human influences. References to Best Management Practices are no longer associated with the term "natural" within Water Quality Standard 8. Additional information is provided in Section IX Number 13 Natural Conditions within this report.

IX. Specific Comments and Response thereto on the Proposed Revisions to the Water Quality Standards

1. PREFACE AND INTRODUCTION TO THE WATER QUALITY STANDARDS

Comments:

- Questions have been raised in the past concerning whether the Preface is actually a part of the Water Quality Standards, yet this section continues to perform a useful function and should be maintained. The Preface explains how the three parts of the Water Quality Standards function together (standards and policy statements, criteria established to maintain specific designated uses, and classification maps that link

designated uses to specific surface waters). This section also reinforces the concept that the Water Quality Standards are required and authorized by State law as well as required for consistency with federal law. Recommendation is to retain this section as written. (29)

- Similar concerns have been raised with regard to the introductory paragraphs incorporated into the Water Quality Standards. Similar reasoning supports retaining this section in Connecticut's Water Quality Standards. The Introduction also serves to clarify the role of Connecticut's Groundwater Standards as an integral part of Connecticut's program to protect water quality. Groundwater protection standards are not required by federal law yet clearly represent an important component necessary to support an effective, integrated approach to managing water resources. One apparent typographical error should be correcting the first paragraph on line 6; "clean" should read "clear" within the context of the sentence. (29)

Response:

The Preface and the Introduction will be retained within the Water Quality Standards. The Preface and the Introduction to the Water Quality Standards are considered by CTDEP to be an integral part of the Water Quality Standards as they help frame the scope of the Water Quality Standards in the protection of the environment within Connecticut. The typographical error noted has been corrected.

2. ANTIDEGRADATION PROVISIONS

The 2009 proposed restructuring and updating of the antidegradation implementation policy for consistency with current EPA guidance has been retained with modifications made in response to public comment.

Comment:

- EPA's regulations allow degradation upon a determination that lowering water quality is necessary to accommodate important economic or social development in the area in which such water are located. CTDEP's language uses the term "overriding" rather than "important". Further explanation is requested from CTDEP as to how it interprets and applied the term "overriding" in its anti-degradation reviews to ensure that it is at least as stringent as the term "important". (53)

Response:

The term "overriding" is utlized in the existing 2002 Connecticut Water Quality Standards. Demonstrating an overriding need to accommodate economic and social development is a more

stringent test than just showing that such development is important. The definition of both terms as found in the Miriam-Webster Dictionary (available on-line at http://www.merriam-webster.com/) illustrates this concept. The word "important" means something that is consequential, significant or meaningful while the term "overriding" refers to something that is paramount, supreme or greatest. Therefore, the difference between the two words is one of degree with the term "important" representing a significant or meaningful need to accommodate development while the word "overriding" represents the greatest or supreme need to support the proposed development, a more stringent test.

Comment:

- Water Quality Standard 3 has been modified in the proposed revision to include consideration of overriding economic or social benefits to "the area in which the receiving water is located" in addition to the previous requirement that those benefits would be realized "to the State". This change strengthens this standard but only if the conjunctive "and" is retained requiring that any lowering of quality must be found necessary to accommodate overriding economic or social benefits at both the local and Statewide scale.

  Many development projects are viewed at the town level as being necessary to support the local economy (increase tax base, provide jobs, etc) that would easily meet the local benefit test yet not meet the test of providing the necessary benefits at a larger statewide scale. Many municipalities have argued that the cost of providing advanced levels of wastewater treatment represents an unacceptable economic burden on the local economy. Allowing water quality to be lowered, or not sufficiently improved to meet Water Quality Standards, based exclusively on local social and economic considerations would greatly increase the potential for water quality degradation in pursuit of short-term, non-sustainable economic gains. Similarly, reliance on only the statewide benefit provision could result in lowering of localized water quality without consideration of some benefits accruing to the local community where that degradation takes place. Demonstrating statewide necessity is a much more difficult test to meet and only those projects that provide broad-based benefits (transportation, energy, etc) could be expected to meet those criteria. By consideration of both statewide and local benefits in determining the necessity of lowering water quality this provision, as proposed, would strengthen Connecticut's Water Quality Standards and should be retained. (29)

Response:

Comment noted however the term "or" has been retained to be consistent with 40 CFR 131.12.

Comment:

- The language within the current antidegradation provisions that indicate that water quality within high quality waters can be lowered if necessary to accommodate overriding state economic and social development is contradictory to existing federal requirements which consider the area in which the high quality waters are located. However, language in the proposed Water Quality Standards in Section V of the Antidegradation Implementation Policy allows lowering of water quality within high quality waters only if it is necessary for accommodating overriding economic or social benefits to the State and the area in which the receiving water is located. This new language addresses deficiencies previously raised. (24, 28, 58)

Response:

Comment noted.

Comments:

- In Appendix E Part V 2, similar to the addition made in Standard 2, CTDEP needs to add after the words "economic and social development," the words "in the area in which the waters are located," in order to be consistent with 40 CFR 131.13.(a)(2). (53)
- Replace the draft language in Section V 2 of the Antidegradation Implementation with the language in Section V 4 and Surface Water Quality Standard 3 "it is necessary to accommodate overriding economic and social benefits to the State and to the area in which the receiving water is located". (24, 28, 58)

Response:

The language in Appendix E Part V 2 has been modified to better reflect the language in Water Quality Standard 3 as revised.

Comment:

- Two wording changes (addition in capitals) are suggested within the second paragraph of Water Quality Standard 3, line 4. Edit to read: General Statutes, and MAY require additional treatment measures IF deemed necessary to prevent pollution and maintain high water quality. (29)

Response:

The suggested changes have been made.

Comment:

- In the last sentence of Appendix E Part I insert the words "and the level of water quality necessary to protect those uses" before the words "in all cases." This is necessary to be consistent with 40CFR 131.12(a)(1). (53)

Response:
Change made.

Comment:

- EPA's antidegradation regulation does not apply solely to new or increased discharges or activities. In Appendix E Parts II and III, the applicability section and general provisions should be clear that the Antidegradation Policy applies to all discharges or activities, not just new or increased discharges or activities. (53)

Response:
Agreed. The antidegradation policy applies to all activities, not just those that are new or expanded. This has been clarified. In addition, language has been added to indicate that for a particular activity that has already been the subject of an antidegradation review, if the activity is currently being reauthorized and there have been no changes to the activity since the last antidegradation review, a new antidegradation review is not needed.

Comment:

- The criteria in Appendix E Part II paragraph 2 should be revised to ensure that increased discharges or activities that affect the biological and physical condition of a water body are considered. The draft language appears to exclude increases that result in degradation of water quality due to reasons other than pollutants, such as adverse alterations of flow conditions due to increased impacts from a dam's revised operations, a new dam or adverse impacts to the biological community due to increased flow through an intake structure for a power plant. (53)

Response:
The language has been clarified to indicate that the concept of increased discharges includes an increase in environmental stress due to chemical, physical or biological stressors.

Comments:

- The evaluation of the effects of the proposed activity on downstream waters as expressed in Appendix E Part IV (n) should occur regardless of whether the downstream water has been identified as impaired. (53)
- Section IV of the revised Antidegradation Implementation policy includes a reference to impaired waters in subsection (n). This term should be defined in Appendix A to the Water Quality Standards. (24, 28, 58)

Response:

Agreed. The effect on any downstream water should be considered. The language in this section has been streamlined to indicate that all components of the Water Quality Standards must be considered as part of this evaluation. This would include consideration of effects on downstream waters. The term "impaired" is no longer directly used in this section and so a definition has not been added to the Water Quality Standards.

Comment:

- In Appendix E Part V 1, all new or increased discharges or activities should be subjected to Tier 2 antidegradation review. If CTDEP determines that it is important to provide limited exceptions to full review, such exceptions should relate to clearly insignificant discharges and should be narrowly and precisely defined in the implementation procedures. For example, exceptions for discharges that are short term and temporary or related to a specific storm water design criteria should be quantified and procedures provided as to how an applicant may demonstrate that these criteria have been met. CTDEP must provide scientific justification to demonstrate that such exceptions would not, either individually or cumulatively, result in the degradation of water quality. (53)

Response: *The language in the Antidegradation Implementation Policy was simplified to better show the exceptions to conducting an Antidegradation Review. Proposed exemptions and supporting reasons are provided in the following table.*

Proposed Exemption	Affected Antidegradation Review Tier/Discharges & Activities	Supporting Information
Discharge or Activity to High Quality Water is temporary and it is expected that water quality in the receiving water is equal to or better than that which existed prior to the discharge or activity	Tier 2 Antidegradation Review (discharges to high quality waters)	This exemption has been identified for application to Outstanding National Resource Waters (Federal Register Vol 48 No 217 p 51402) As Outstanding National Resource Waters are a subset of High Quality Waters, allowing this exemption to apply to High Quality Waters is consistent with federal intent for the implementation of a state's Antidegradation Policy
For discharges or activities resulting from stormwater, the first inch of rainfall is not discharged to a surface	Tier 2 Antidegradation Review (discharges to	The fact sheet for Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under

Proposed Exemption	Affected Antidegradation Review Tier/Discharges & Activities	Supporting Information
water body and Best Management Practices are employed	high quality waters)	Section 438 of the Energy Independence and Security Act (December 2009) states that facilities are expected to limit impacts from stormwater on a receiving water and preserve stream hydrology if stormwater practices are implemented which result in the retention of the 95th percentile rainfall event. Within Connecticut, the 90th percentile rainfall event is estimated to be a one inch rainfall within this EPA guidance document.

Comment:

- In Appendix E Part V 1, are the specific circumstances identified in (a) through (h) applied independently. If so, change the "and" at the end of subsection (g). (53)

Response:

The word "and" was appropriately changed to "or".

Comment:

- Appendix E Part V 1 appears to provide the Commissioner with the discretion to decline to deem a discharge or activity to result in a significant change in water quality even if it falls within the circumstances identified in (a) through (g). (53)

Response:

Consistent with EPA guidance, this section has been revised to focus on clarifying circumstances when a discharge or activity would not reasonably be expected to significantly lower water quality in high quality waters or wetlands. The proposed language does not allow the Commissioner to decline to evaluate the significance of a discharge or activity on water quality.

Comment:

- In Appendix E Part V 1 there is no provision to ensure that the cumulative effect of new or increased discharges or activities would not cause a significant lowering of water quality. (53)

Response:

Paragraph V 1 has been revised to clarify that the cumulative effect of all discharges are considered together.

Comment:

- In Appendix E Part V 1, it appears that the Commissioner may consider a discharge or activity to be significant only in the specific circumstances identified in subsection (a) through (h) of that section. It appears to preclude the case by case determination that any other type of new discharge or activity would have a significant effect on water quality. If this is not the intent, we recommend changing the last sentence in paragraph V 1 to read " The Commissioner…high quality waters including but not limited to discharges or activities which she determines…." (53)

Response:

Appendix E Part V 1 has been revised. The suggested rewording is no longer applicable.

Comment:

- In Appendix E Part VI(ii), the words "short term and" should be added before the word "temporary" in lines two and three in order to be consistent with EPA's interpretation of the circumstances under which new discharges or activities may be added to Outstanding National Resource Waters. (53)

Response:

The suggested language has been added.

Comment:

- In Appendix E, Part II Applicability, section 1, insert period following first reference to Connecticut General Statutes. (29)

Response:

The suggested edit has been made.

Comment:

- In section 2A, reword to read: "A pollutant WOULD BE (such discharge or activity is proposed to be) released AS A RESULT OF THE DISCHARGE OR ACTIVITY at an increased CONCENTRATION OR MASS (level) which (either in terms of concentration or mass loading) may NEGATIVELY affect water quality and be subject to regulation under a permit, water quality certificate or concurrence"; (29)

Response:

The majority of the suggested language has been added. In lieu of the suggested phrase "negatively affect water quality" the phrase "lower water quality" has been added for clarity.

Comment:

- There appears to be no need for 2B since any increase beyond permitted conditions would qualify the discharge for antidegradation review under 2A. Suggest 2B be deleted in total. (29)

Response:

Agreed. Deletion has been made.

Comment:

- In 2C wording is suggested similar to that provided in Water Quality Standard 10 regarding Zones of Influence be used. To accomplish this, replace "The degree or extent of a previously allocated" with "The area and/or volume of receiving water flow of a previously allocated……" (29)

Response:

The suggested language has been added.

Comment:

- It is recommended that a section 3 be inserted describing what constitutes a "New" discharge similar to that provided for an "increased" discharge. This provision would serve to exclude from antidegradation review the issuance of permits for pre-existing discharges that require permits simply due to any future expansion of the Commissioner's authority to regulate. Under NPDES rules, these are considered new discharges. The most recent examples of this would be stormwater discharges and runoff from CAFOs which for many years were considered to be non point sources and outside of the realm of NPDES regulation. It would be inappropriate to consider these as "new" discharges given their historic existence (albeit unpermitted). There are likely other types of currently active discharges or activities currently unregulated by the Commissioner including many land use-related activities such as agricultural practices and residential development that may at some future time come under DEP's regulatory umbrella. It would not seem appropriate to consider these "new" for antidegradation purposes. (29)

Response:

A definition of "new discharge" has been added.

Comment:

- In Section III General Provisions, several wording changes to 2 are suggested to enhance clarity. First, change "any" to "A" in the first line. The sentence should conclude "..activity is consistent with the DESIGNATED uses (goals of) ESTABLISHED IN these

Water Quality Standards FOR THE CLASS OF WATER IMPACTED BY THE DISCHARGE OR ACTIVITY, any duly adopted Total Maximum Daily Load,….." (29)

Response:

The suggested language has been added.

Comment:

- In IV Tier 1 Anti-degradation Evaluation and Implementation Review, the purpose statement refers to an "Implementation Procedure while the section title refers to an Implementation Review". This inconsistency also appears in Tier 2 and 3 procedures. Also suggest deleting the "the" appearing prior to "Connecticut Water Quality Standard 2". (29)

Response:

The changes have been made throughout Appendix E of the Water Quality Standards to indicate that it is an Implementation Review.

Comment:

- The word "REVIEWING" has been inadvertently left out in the first sentence of the second paragraph of this section (In IV Tier 1 Anti-degradation Evaluation and Implementation Review) and at similar locations in sections V and VI. In that same paragraph insert "ASSIGNED TO THE RECEIVING" and delete (for the) between "designated uses" and "water body" and replace the word (utilizing) with CONSIDERING. (29)

Response:

The suggested changes have been made.

Comments:

- In IV Tier 1 Anti-degradation Evaluation and Implementation Review, the lead sentence introducing the list of factors neglects to include "DISCHARGE OR" and references only "activity." (29)
- In subsection (f) of IV Tier 1 Anti-degradation Evaluation and Implementation Review, the reference to "potential uses" opens up the potential for redefining "uses" in ways that may be inconsistent with the Water Quality Standards and CWA goals. Assigning "uses" for purposes of regulation under the CWA requires greater investment in public debate than is envisioned here. Unless the reference is limited to the "potential drinking water supply" use assigned to Class A waters it is recommended that this reference be dropped. (29)

- Subsection (i) is problematic because a decrease in biological condition is reflected in an increase in the biological condition gradient model tier. The most straightforward means of achieving clarity here would be to reword thus: "potential for the proposed discharge or activity to RESULT IN A Biological Condition of 5 OR 6. (29)
- Subsection (j) does not explain the implications of discharging highly bioaccumulative, persistent or toxic compounds. It would be preferable to state that the Commissioner will consider THE RADIOLOGICAL AND TOXICOLOGICAL CHARACTERISTICS AS WELL AS THE PERSISTENCE OF ANY POLLUTANTS THAT MAY BE RELEASED TO THE RECEIVING WATER AS A RESULT OF THE PROPOSED DISCHARGE OR ACTIVITY. (29)

Response:

The lists of factors has been deleted and replaced with new language clarifying that all narrative and numeric water quality standards, criteria and associated policies contained in the Connecticut Water Quality Standards shall form the basis for the review.

Comment:

- In the statement of purpose in V Tier 2 Antidegradation Evaluation and Implementation Review separate mention is made of "wetlands" although all wetlands are considered to be surface waters under the CWA definitions. Areas defined as wetlands for CWA purposes by EPA (commonly referred to as jurisdictional wetlands) may be redefined based on ongoing litigation. If the intent is to require all discharges or activities potentially impacting wetlands (as defined by Connecticut law) to perform a Tier 2 antidegradation review, a clear definitive statement to that effect would be preferable. (29)

Response:

Wetlands are defined within Appendix A of the Water Quality Standards and the uses of the term is intended to cover state as well as federal jurisdictional tidal and inland wetlands.

Comments:

- The Antidegradation Implementation Policy does not provide a clear and objective means of identifying which surface waters should be considered to be "high quality" for purposes of applying the policy. (29)
- It is important to distinguish between "high quality" and "highly valued". Antidegradation review is not a popularity contest concerned with identifying which surface waters people love the most but should be an unbiased analysis of which waters exhibit higher than necessary quality by some objective measure. Suggest adoption of a "use-by-use" approach that considers any water that fully support a use to be high quality for that use. Waters assessed as impaired for a use (e.g. aquatic life use impaired

and 303(d) listed) should not be considered as high quality for aquatic life use. Considering all waters with a biological condition of 3, 2, or 1 as "high quality" for aquatic life use and waters with biological condition of 4, 5, or 6 as not high quality would be an acceptable alternative. A table listing the necessary characteristic for designation as "high quality" water for each designated use would be the ideal solution. (29)

- Subsection 1(a) is confusing. Suggest adding the phrase "OR ACTIVITY" at the conclusion of the sentence following "discharge". (29)
- In 1(b) suggest replacing "unused" with "AVAILABLE", replacing "(a) receiving water" with "THE receiving water", and rephrase the second clause to read ", or result in (a) THE DISCHARGE OF A pollutant that will not…..". (29)

Response:

A definition of "High Quality Waters" and "Outstanding National Resources Waters" have been provided in Appendix A (Definitions) of the Water Quality Standards. In addition, CTDEP intends to utilize the factors contained in the following table when identifying High Quality Waters.

Factors to Consider When Identifying High Quality Waters Based on Designated uses for surface waters as described in Connecticut Water Quality Standards (Water Quality Standards, DEP 2002) and 305(b)/303(d) Reports.

Water Quality Standards and present 305(b)/303(d) Designated Use	Applicable Class of Water or Class Goal	Functional Definition	Minimum Factors to be Considered When Identifying High Quality Waters
Recreation	AA, A, B, SA, SB	Swimming, water skiing, surfing or other full body contact activities (primary contact), as well as boating, canoeing, kayaking, fishing, aesthetic appreciation or other activities that do not require full body contact (secondary contact).	A. Number of beach closings and the reasons for such closings B. Amount of bacteria measured in surface water
Habitat for fish and other aquatic life and wildlife.	AA, A, B, SA, SB	Waters suitable for the protection, maintenance and propagation of a viable community of aquatic life and associated wildlife.	A. Analysis of biological communities with respect to the Biological Condition Gradient. Biological Condition Gradient Tiers 1 through 3 are considered to represent High Quality Waters. B. Designation as a Wild and Scenic River
Fish Consumption: Not specified as a use, but implicit in "Habitat for fish and other..." CTDEP will continue to report on Fish Consumption for 305(b)/303(d)	AA, A, B, SA, SB	Waters supporting fish that do not contain concentrations of contaminants from local sources, which would limit consumption to protect human health.	An evaluation in support of the designated use Habitat for fish and other aquatic life and wildlife will be sufficient for consideration of High Quality Water designation

Water Quality Standards and present 305(b)/303(d) Designated Use	Applicable Class of Water or Class Goal	Functional Definition	Minimum Factors to be Considered When Identifying High Quality Waters
Shellfish harvesting for direct human consumption where authorized.	SA	Waters from which shellfish can be harvested both recreationally and commercially and consumed directly without depuration or relay. Waters may be conditionally approved.	Number of closures for the shellfishing beds and the reasons for such closings
Commercial shellfish harvesting where authorized.	SB	Waters supporting commercial shellfish harvesting for transfer to a depuration plant or relay (transplant) to approved areas for purification prior to human consumption (may be conditionally approved); also support seed oyster harvesting	Number of closures for the shellfishing beds and the reasons for such closings
Existing or proposed drinking water supplies.	AA	Waters presently used for public drinking water supply or officially proposed for future public water supply.	Water quality as evaluated using ambient surface water concentrations and in consideration of State and Federal Drinking Water regulations
Potential drinking water supplies.	A	Waters that have not been identified, officially, but may be considered for public drinking water supply in the future.	Water quality as evaluated using ambient surface water concentrations and in consideration of State and Federal Drinking Water regulations

Water Quality Standards and present 305(b)/303(d) Designated Use	Applicable Class of Water or Class Goal	Functional Definition	Minimum Factors to be Considered When Identifying High Quality Waters
Navigation	AA, A, B, SA, SB	Waters capable of being used for shipping, travel or other transportation by private, military or commercial vessels.	Best Professional Judgment
Water Supply for Industry	AA, A, B, SA, SB	Waters suitable for industrial supply.	An evaluation in support of the designated use Habitat for fish and other aquatic life and wildlife will be sufficient for consideration of High Quality Water designation
Agriculture	AA, A, B	Waters suitable for general agricultural purposes.	An evaluation in support of the designated use Habitat for fish and other aquatic life and wildlife will be sufficient for consideration of High Quality Water designation

Comments:

- In subsection (c) (V Tier 2 Antidegradation Evaluation and Implementation Review) there is mention of a margin of safety. As presented it infers that there is some acceptable margin that must be available. Suggest reviewing this provision together with (b) immediately above it and decide if it really is necessary at all. (29)
- In (d) suggest "POLLUTANTS" as a better word choice than "compounds". (29)
- In (g) some reference to statute, regulation, or widely accepted published scientific reports, or official DEP/EPA guidance describing how these particular locations are defined is necessary. Modification of the definition provided in Appendix A may suffice. (29)

Response:

The language in Section V regarding the Tier 2 Antidegradation Evaluation and Implementation Review has been revised to more clearly focus on the limited circumstances under which an exemption from this evaluation may be considered.

Comment:

- Subsection (f) provides a directive that has the feel of something taken directly from a general permit or other regulatory requirement. Further, the reference to "State Standards and Criteria" is inappropriately vague. (29)

Response:

This section is intended to identify an exception to the requirements to conduct a Tier 2 Antidegradation Review. The fact sheet for Technical Guidance on Implementing the Storm water Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act (December 2009) states that facilities are expected to limit impacts from storm water on a receiving water and preserve stream hydrology if stormwater practices are implemented which result in the retention of the 95th percentile rainfall event. Data from this report indicates that within Connecticut, the 90th percentile rainfall event is estimated to be a one inch of rainfall.

Comment:

- In section 2 (V Tier 2 Antidegradation Evaluation and Implementation Review) for consistency reference should be made as to the scale of the economic and social development. The need to underline this phrase is questioned since that convention has not been used elsewhere in the Water Quality Standards to draw attention to a particular phrase. "WILL" is missing between "requirements" and "be achieved" as well as between "storm water controls" and "be implemented". (29)

Response:

The underline was deleted (a carryover from the 2002 Water Quality Standards) and the other recommended changes made.

Comment:

- On page E-7 (v) "their" should be "THE". (29)

Response:

The suggested wording change has been made.

Comment:

- Change the word "Economics" in the last line of subsections V.3.B and V.3.C to "Economic". (24, 28, 29, 58)

Response:

The suggested change has been made.

Comment:

- A definition for Outstanding National Resource Waters should be included in the Water Quality Standards. (24, 28, 58)

Response:

A definition has been added.

Comment:

- Section IV of the revised Antidegradation Implementation Policy states that Outstanding National Resource Waters should be protected consistent with Water Quality Standard 3. The reference should be changed to Water Quality Standards 5. (24, 28, 58)

Response:

Agreed. The reference was corrected to surface Water Quality Standards 2 through 5.

Comment:

- The organizational format of Appendix E is not standardized and is confusing. It should be standardized. (31, 28))

Response:

Appendix E has been renumbered.

Comment:

- The language in Standard 5 allows temporary discharges to Outstanding National Resource Waters if the discharge would be insignificant. We oppose this language and believe that no discharge, even if temporary or insignificant, should be allowed to these waters. (41)

Response:

The federal regulations concerning the Antidegradation Policy required in state Water Quality Standards (40 CFR 131.12) does not prohibit discharges to Outstanding National Resource Waters. Discharges to Outstanding National Resource Waters are allowable under limited circumstances and must meet high standards including a demonstration that an allowable discharge would not adversely affect the high water quality within the resource. Additionally,

since storm water is considered a discharge by EPA, a complete prohibition of discharges to these areas is not feasible.

Comment:

- The proposed revisions to Antidegradation Implementation Policy will complement the continued efforts to restore the Norwalk River Watershed system. (56)

Response:

Comment noted.

3. BACTERIA

Comment:

- Revisions to the Table in Appendix B are unclear as to whether the proposed removal of the less stringent fecal coliform criteria is indicating that CTDEP intends to protect all direct harvest and commercial shellfishing areas with the same, more stringent, criteria or whether CTDEP intends to remove the protection for commercial shellfishing areas. This needs to be clarified and CTDEP must demonstrate that commercial shellfish harvesting will be, at a minimum, protected to the same degree as provided for in the current Water Quality Standards. (53)

Response:

CTDEP in conjunction with the Bureau of Aquaculture within the Connecticut Department of Agriculture intend to protect direct harvest of shellfish in approved and conditionally approved areas for recreational and commercial use (as determined by the Bureau of Aquaculture) using the proposed fecal coliform criteria of 14/100 ml (geometric mean) and 31/100 ml (90% of samples less than this value). Direct harvest of shellfish in approved and conditionally approved areas are uses ascribed to Class SA waters. Harvest by licensed operators for indirect consumption as determined by the Bureau of Aquaculture is associated with Class SB waters. CTDEP proposed to retain the current standards for fecal coliform in Class SB waters to maintain protection of this designated use. The current criteria for fecal coliform in Class SB waters that are protective of indirect consumption of shellfish are 88/100 ml (geometric mean) and 260/100 ml (90% of samples less than this value).

Comment:

- Verify that the documents referenced in the table notes are the most current versions. (29)

Response:

Table Note 4 was updated to reference the Connecticut Guidelines for Monitoring Bathing Water and Closure Protocol (revised April 2003 and updated December 2008). The reference to

the National Shellfish Sanitation Program Model Ordinance document Guide for the Control of Molluscan Shellfish 2007 is correct.

Comment:

- There are several problems with respect to the final note, Guidelines for Use of Indicator Bacteria. The initial sentences clearly reflect the original intent that the classifications would reflect the current condition, something that they do not do currently and CTDEP is proposing to eliminate by dropping the "slash" classification system. The most current assessment would be the 305(b) report. Suggest deleting everything except perhaps the warning to not rely of the classification as a certification of current quality. (29)

Response:

The Guidelines for Use of Indicator Bacteria Criteria in Appendix B of the Water Quality Standards has been changed to indicate that the classifications pertain to uses of the water body and not the quality of the water or shellfishing resources. Furthermore, the Guidelines for the Use of Indicator Bacteria Criteria in Appendix B have been revised to include references to the Integrated Water Quality Report available from CTDEP for current information on water quality and referral to the Bureau of Aquaculture in the Department of Agriculture is made for current information on shellfishing resources.

4. BIOCONDITION GRADIENT

Comment:

- Appendix H Connecticut Biological Condition Gradient Model might benefit from a brief (perhaps one paragraph) description of the basis for the model, specifically, ecosystem response to stressor and some statement regarding the broad applicability of the model to a broad range of ecosystem types. (29)

Response:

Appendix H is now Appendix G. Language has been added to Appendix G to provide a description of the model.

Comment:

- The highest tier of the Biological Condition Gradient (BCG) is proposed to be "Natural or Native Condition". Given the definition of "natural" in Standard 8, the highest tier in the BCG may already be subject to human use of the land and best management practices. This would result in no consistent control condition by which to measure the impacts on biota of further human disturbance. (53)

Response:

Changes have been made to the definition of the term "natural", which no longer associates natural conditions with the implementation of best management practices.

Comment:

- In the narrative standard for Biological Condition for each water quality classification a slight rewording for clarity is suggested. In the second sentence, biological communities should be singular, i.e. biological community. Also, it is suggested that the last phrase in that sentence be revised thus: "…, water quality shall be sufficient to sustain a biological condition WITHIN THE RANGE OF CONNECTICUT BIOLOGICAL CONDITION GRADIENT TIERS 1-4 AS assessed along a 6 tier stressor gradient of Biological Condition." Identical wording should be used for all water quality classes. (29)

Response:

CTDEP believes that the term "biological communities" is appropriate in the plural. The other suggested changes have been made as appropriate within the Designated Uses and Criteria for Class AA, Class A, and Class B surface waters.

5. CLASSIFICATION SYSTEM AND MAPS

Note: A technical correction has been made to the proposed Water Quality Classification Maps which include Candlewood Lake to show that the Water Quality Classification for the lake is B*, consistent with the current Water Quality Classification maps. The proposed maps had inadvertently identified the Water Quality Classification for Candlewood Lake as Class B. This correction has been made and language added to the Water Quality Standards to reflect the meaning of this classification designation consistent with the original adoption of the classification in 1985.

Comment:

- The maps would be easier to read if a more appropriate color scheme was selected to indicate the various categories. Using the model that clean water is blue and dirty water is brown, CTDEP should change the color scheme so that the cleanest water is the darkest shade of blue and transition through lighter shade of blue through light brown. This approach should also be used for Groundwater Classifications. (44)

Response:

The maps provide a graphical presentation of the designated uses for water bodies in Connecticut. It does not represent the current quality of surface and ground waters. That information is more appropriately obtained from the Integrated Water Quality Report that

CTDEP publishes every two years and is available on the CTDEP website. The 2008 Integrated Water Quality Report is available at
http://www.ct.gov/dep/cwp/view.asp?a=2719&q=325610&depNav_GID=1654 .
No changes to the maps are proposed since the maps are intended to represent designated uses not water quality.

Comment:

- In subsection (A) of Water Quality Standard 30 the appropriate reference would be Water Quality Classifications, particularly since it is being proposed to eliminate the current condition aspects of the maps. (29)

Response:

Agreed. The words "goals and" will be deleted leaving only the reference to Water Quality Classifications.

Comments:

- The Classification maps have historically included a "slash" classification (e.g. B/A, C/B) assigned to those waters where the current quality (first letter) is not sufficient to support all designated uses assigned to the "goal" (second letter following the slash). For water quality management purposes, the "existing quality" classification has little relevance since the water quality criteria that must be met are those associated with the "goal" classification. Nevertheless, the "slash" classification has proven useful in identifying the presence of legacy pollution sources (e.g. closed and capped landfills, areas of contaminated sediments). Discontinuing the "slash" designation could potentially result in a loss of useful information. (29)
- Modification of the system for classifying the quality of surface water from their existing states to goal states could potentially remove the ability of CTDPH and public water systems to accurately assess the current condition of the aquifer and/or surface water body when reviewing proposals for new sources of supply. The modification to the Water Quality Standards maps to indicate goal classification can be supported provided an alternative means to investigate the current status is updated and maintained (such as CT ECO) so that the current (not goal) classification and condition of proposed and potential sources of public water supply can be made. (49)

Response:

The Water Quality Classification Maps do not represent existing water quality and the quality of the State's waters may change over time, therefore it is appropriate to drop the "slash" designation as this time. CTDEP monitors waters in the State to determine whether or not the quality of those waters are consistent with supporting the designated uses identified for the

water resource, in light of the narrative and numeric criteria contained in the Water Quality Standards. Focusing the terminology for classification on the designated uses provides clarity regarding the management of our State's water resources.

The revision to the mapping symbols will clearly indicate the water quality management goal and avoid any confusion with an indication of a presumed existing water quality condition. The change to show only the surface water quality classification goal aligns the mapping with the ground water quality classifications maps which were previously revised to show ground water quality goals only. It is also consistent with other states in the region. The classification mapping did not always accurately indicate existing water conditions, and existing water quality conditions or threats are more accurately indicated by the CTDEP's available water quality monitoring and assessment reports or other potential pollution source mapping by the CTDEP.

However, the point regarding the need for the CTDEP to provide accurate information to the public regarding current and past pollution sources is well made. CTDEP has maps that provide historic information for the locations of landfills and discharges to surface water and groundwater. Information about obtaining this set of maps or additional information can be obtained by contacting the GIS Section of the Office of Information Management at CTDEP (DEP.GISDATA@ct.gov). In addition, CTDEP acknowledges the June 2010 MEMORANDUM OF AGREEMENT BETWEEN THE STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH AND THE DEPARTMENT OF ENVIRONMENTAL PROTECTION concerning Geographic Information System data sharing.

In certain circumstances, it is important to understand historic pollution source and/or water quality concerns, such as water bodies previously classified as B/A or B/AA. The suitability of a given water body to support the designated use goals must be assessed. For instance, a water body formerly classified as B/AA would now have a single classification of AA which would not in and of itself denote whether or not the water body currently could be developed for use as a drinking water supply. The classification denotes that either the water body is an existing or proposed water supply. The classification determines how the water body will be managed and protected consistent with the standards within the Water Quality Standards.

Because of the importance of the classification system to statewide planning, CTDPH and CTDEP should consider undertaking a review of the appropriateness of changing water bodies previously classified with a split classification to a single goal classification of AA under the proposed classification system. In addition, as CTDPH develops mapping for future potential sources of drinking water supply, CTDEP and CTDPH should work together in integrating the

various mapping information with the Water Quality Standards classification maps and other statewide planning documents.

6. COASTAL WATER CLASSIFICATIONS AND CRITERIA

Comment:

This section should be reviewed for consistency with the Inland Waters section that precedes it. (29)

Response:

The sections of the Water Quality Standards pertaining to Class SA and SB waters were reviewed for consistency with the portions applicable to Class AA, A and B waters. The tables for each water quality classification were similar except that, for Class SA and SB waters, a narrative statement regarding biological condition was not previously included. Language has been added to address biological condition within marine waters. Additionally, the text pertaining to SA and SB waters was moved to directly follow the text for Class AA, A and B waters, as the presentation of standards and criteria for these classifications are similar.

7. COLOR

Comment:

- With the narrative language for color as stated in Class B standards, concerns expressed previously regarding allocation of Zones of Influence are noted. (29)

Response:

The existing language for evaluating a Zone of Influence for assimilation of a discharge includes consideration of aesthetic qualities such as objectionable color. This is referenced in the narrative standard for color for Class B waters.

8. DEFINITIONS

Comment:

- A decision should be made as to whether the definitions presented are primarily included for general informational purposes or if the intent is rather to provide explicit, precise definitions for the purpose of reducing uncertainty in implementation of the Water Quality Standards. Evidence of the need for that determination is provided by the numerous definitions that could be replaced with a simple reference to a statutory definition upon which the definition appearing here is clearly derived. Providing

additional explanatory text here may serve to actually increase uncertainty in application. Examples include such defined terms as Coastal Waters, Discharge Toxicity Evaluation, Point source, Sewage, Special Aquatic Sites, Special Wetlands, and many others. (29)

Response:

Language has been added to indicate that the definitions in the Water Quality Standards are provided in support of the provisions of the Water Quality Standards and are intended to provide additional clarification of terms used within the Water Quality Standards.

Comment:

- A second general suggestion is to conduct a "word search" on the final document and delete the definitions for those terms no longer appearing in the Water Quality Standards or the appendices. (29)

Response:

A search has been conducted and the following terms removed from the definition section of Water Quality Standards as they are not used within the document: Arithmetic Mean, Discharge Toxicity Evaluation, Lentic, Lotic, Nearshore, Offshore, Pycnocline, Special Aquatic Sites, Special Wetlands , and Stream Flow Regulation.

Comment:

- The definition for Antidegradation Policy should be modified to include reference to OVERRIDING ECONOMIC OR SOCIAL BENEFITS TO THE STATE as well as the area where the water is located. This change is critical to maintaining the meaning and intent of the proposed changes to Water Quality Standards #3. If, in fact, those proposed changes are not adopted in the final version, this definition, as it currently appears would be incorrect since the current reference is to statewide benefit analysis only. (29)

Response:

The definition for Antidegradation Policy has been revised to indicate that the term refers to statements of policy contained in Water Quality Standards 1 through 5, ensuring consistency between the definition and the policy.

Comment:

- The definition of "classification" should be modified to reflect the proposed change to drop the "slash" classification. (29)

Response:

The definition has been modified to remove the reference to a two-part classification and to clarify that the term classification pertains to designated uses for a water body and not existing water quality.

Comment:

- The definition of "criteria" should be modified to include "mass loading" as an acceptable means of expressing criteria. (29)

Response:

The change has been made.

Comment:

- Suggest modifying the definition of "Cultural Enrichment" as follows: "means the addition of (excess) nutrients (input) into surface waters from human sources THAT, in combination with other habitat factors, RESULTS IN ELEVATED (may cause high) biological productivity AS MAY BE characterized by severe blooms of algae and/or extensive areas of dense macrophyte beds." (29)

Response:

The term has been deleted since, with other revisions to the Water Quality Standards, the term is no longer used in the document.

Comments:

- Suggest that the qualifier CURRENT be inserted prior to "Biological Condition" and the word "Gradient" be deleted from the definition of "high quality waters". (29)
- Suggest the addition of OR BIRDS immediately prior to the period at the end of the definition of "indicator bacteria". (29)
- The definition of "trophic state" is incorrect. Trophic State is a condition that reflects the biological productivity of an ecosystem, not the degree of nutrient enrichment. Although the two are arguably related, they are not the same. Suggest language "MEANS THE LEVEL OF BIOLOGICAL PRODUCTIVITY IN A SURFACE WATER." (29)

Response:

The changes have been made to the definitions of "High Quality Waters" and "Indicator bacteria" as suggested. Revisions in keeping with the suggested revisions to the definition of "Trophic State" have also been made.

Comment:

- Each of the terms "Threatened, Endangered, or Special Concern Species; Significant Natural Communities" should be defined separately (29)

Response:

Definitions have been added for Endangered Species, Threatened Species, Species of Special Concern and Significant Natural Communities.

Comment:

- Modify the definition of "stream flow regulation" through the insertion of a comma following "dams" and addition of FROM WELLS OR INTAKE STRUCTURES following "withdrawals." Also note current convention is to consider stream flow to be two words. (29)

Response:

As the term "stream flow regulation" is not used within the Water Quality Standards this definition has been deleted from Appendix A of the water Quality Standards.

Comment:

- Modify the definition of "zone of influence". It is not clear whether this definition is sufficiently broad to include all situations where a zone of influence may be allocated by the Commissioner. Water Quality Standard 10 provides descriptive information regarding zones of influence, and thus this definition may not be necessary. (29)

Response:

The definition of Zone of Influence has been retained as it helps clarify the term. However, language has been added to refer back to Water Quality Standard 10 for more complete information.

Comment:

- Coastal waters are defined as waters having a salinity of 500 ppm or more. However, many maps of coastal waters include all waters with tidal action and include tidal freshwaters with lower salinities. Due to the limited range of tidal freshwaters, "head of tide" areas represent rare habitats and are important for conservation. The manner in which the Water Quality Standards account for tidal freshwaters should be reviewed and the lower of freshwater or saline standards in those waters applied when appropriate. (52)

Response:

In the notes to the table of numeric criteria for toxics in Appendix D of the Water Quality Standards, the CTDEP had proposed language to indicate that aquatic life criteria for freshwater

may be used for saltwater if criteria for saltwater are unavailable, and for brackish waters the more restrictive of the aquatic life criteria for freshwater and for saltwater should be used.

Comment:

- In the February 2, 2010 errata document posted on the CTDEP website, wetlands are defined as, "Wetlands means wetlands as defined under section 22a-28 and 22a-38 of the General Statutes and as defined under the 1987 Corps of Engineers Wetland Delineation Manual, as amended." This definition should be revised for clarity. Defining wetlands as areas that meet both Connecticut and Federal definitions would exclude wetlands that meet only soil criteria required under Connecticut regulation. Furthermore, the Corps of Engineers Wetland Delineation Manual can provide methods for determining if areas meet the required soil, vegetation and hydrology characteristics to be considered wetlands. Areas that are found to be wetland by applying the methods of the delineation manual may not be federally regulation under the Clean Water Act due to a lack of connectivity to navigable waters. Unless otherwise required, one standard should be chosen for the definition of wetlands. (52)

Response:

Language has been changed to clarify that wetlands refer to areas defined as a wetland pursuant to either state OR federal definitions, as both are applicable.

9. DISINFECTION OF TREATED SANITARY DISCHARGES

Comments:

- CTDEP should re-examine the policy that uses I-95 as a barrier to divide wastewater treatment plants between those that should continuously treat their effluent and those that need to provide seasonal treatment. This policy is not based on science. CTDEP should consider using geographic features or latitudes to make this distinction. (44)
- Connecticut should adopt sewage treatment plant standards similar to Massachusetts which require treatment of effluent from April 1 through October 31. Many recreational groups use the rivers during periods when disinfection is not currently required in Connecticut. The proposed standards prevent these individuals from safely using the river to its full capacity. (44)
- The absence of any applicable bacteria standard from October 2 through April 30 for waters affected by sewage treatment plants located north of I-95 is not sufficiently protective of recreational uses. There are various school groups using portions of these waters for activities such as crew teams during the period when disinfection is not required. Additionally, it is noted that the Water Quality Standards provide for

continuous disinfection in other portions of the state to protect shellfishing resources. Standard 23B should be modified to require year round application of bacteria criteria. This standard could be further amended to allow for seasonal disinfection, at the discretion of the Commissioner, if that is sufficient to protect designated uses on a case by case basis. Seasonal disinfection should be required for a period of time, sufficient to protect uses of the water body, a period longer than currently employed. (53)

Response:

No change is proposed to Standard 23 as the CTDEP did not provide notice to the general public that this provision of the Water Quality Standards was under consideration for modification and this issue requires further public process. However, the public comments identify important concerns regarding the duration of disinfection periods for sewage treatment plants within Connecticut. As each permit comes up for renewal, CTDEP will re-evaluate the current level of recreational use of the receiving water body to determine if the current permitted period of disinfection is sufficient to protect uses of the river or whether an expansion of the disinfection period is warranted. Addressing this concern through the permitting process will allow for site-specific review and provide a means for public review and comment.

10. DISSOLVED OXYGEN CRITERIA FOR MARINE WATERS

Comment:

- Connecticut's dissolved oxygen standards for marine waters should match that of New York State since we both share Long Island Sound. However, it is not clear that New York's standards are scientifically based. (44)

Response:

The state of New York used the same dissolved oxygen criteria for marine waters support document published by the EPA (Ambient Aquatic Life Water Quality Criteria for Dissolved Oxygen (Saltwater): Cape Cod to Cape Hatteras EPA-882-R-00-012, available at http://water.epa.gov/scitech/swguidance/waterquality/standards/upload/2007_03_01_criteria_dissolved_docriteria.pdf) *that CTDEP used for deriving marine dissolved oxygen criteria. The criteria are based on scientific studies that directly measured the effect of low dissolved oxygen on a variety of marine species. Survival rates for juvenile and adult organisms were evaluated for both continuous and cyclic exposures to low dissolved oxygen. Bioassays with larval organisms were conducted to evaluate potential effects on growth rates and a model was developed to evaluate the ability of larval organisms to successfully develop into juvenile life stages. The EPA criteria were vetted through a full public review process and have not been*

superseded by any subsequent publications of criteria for dissolved oxygen in the marine environment.

Comment:

- EPA supports the use of the EPA recommendations for dissolved oxygen concentration in saltwater as proposed for use in these revisions and supports a consistent application of marine criteria for dissolved oxygen throughout Long Island Sound. However, the 2000 EPA criteria document did not include any field observations focusing on the survival and growth of larvae that are sensitive to hypoxia. CTDEP should consider any scientific findings which may have been made available in the intervening years in order to address this data gap. (53)

Response:

CTDEP has not directly collected any field data that correlates the survival and growth rates of larval species with dissolved oxygen concentrations. A literature search was conducted, but no information was found post the date of publication of the EPA criteria document that supported a re-evaluation of the data provided in the criteria document.

Comment:

- The reference to "Coastal Waters" in the title should be changed to SAA, SA, and SB Waters since there is some potential for confusion. Reliance on the Classification to define the area of applicability eliminates uncertainty since these areas are mapped and there is no need to interpret a narrative description of what constitutes coastal water. The reference to "LIS" in the test should also be replaced with SAA/SA/SB waters" since it may be unclear to some what is meant by "LIS" (there is no prior mention of Long Island Sound). Additionally, some SAA/SA/SB waters such as the Thames, Connecticut, and Housatonic estuaries and some harbor areas are not considered to be a part of LIS by many in the general public although they are classified SAA, SA or SB and covered by the proposed criteria. (29)

Response:

References to "Coastal Waters" throughout the document have been replaced with reference to Class SA and SB waters.

Comment:

- In Appendix C, the first sentence in the section on Cumulative Dissolved Oxygen exposure parameters infers that a single numeric criterion is effective for toxic pollutants. Nothing could be further from the truth. Toxic pollutants require consideration of magnitude, duration of exposure, and frequency of exceedances in

order to be effectively implemented. Where dissolved oxygen and toxic pollutants differ is that one parameter (Dissolved Oxygen) causes impacts when there is not enough, and the other (toxics) when there is too much. Otherwise the "dose/response" model works equally well to describe the impact of both. Note the table notes for Appendix D particularly numbers 4, 5, 8, 10, and 11. (29)

Response:

The phrase "as is often done with toxic contaminants" has been deleted from the first sentence in the section on cumulative dissolved oxygen exposure parameters in Appendix C of the Water Quality Standards.

Comment:

- The table, including the title is confusing. Something simpler is suggested such as "Dissolved Oxygen Chronic Cumulative Criteria for SAA, SA, and SB waters." A final suggestion is to add AVAILABLE FOR DOWNLOAD ON THE DEP'S WEBSITE (url) OR BY CONTACTING THE DEP AT (address) at the conclusion of the appendix. (29)

Response:

The title of the table has been re-stated for clarity and a reference added to identify where to obtain a copy of the Integrated Water Quality Report referenced in this Appendix.

11. DRINKING WATER SUPPLY PLANS

Comments:

- Standard 21 indicates that surface waters that are potential drinking water supplies in the Long Range Plan for Management of Water Resources should be designated Class AA. Since this plan has not yet been established we recommend that this standard also apply to potential drinking water supplies identified in individual Public Water Supply Plans submitted and approved pursuant to 25-32d CGS. (43)
- Water Quality Standard 21. Suggest rewording subsection (2) to read: "have been recommended for future use as a drinking water supply in AN APPROVED Water Supply Plan prepared pursuant to section 25-32d-2 of the Regulations of Connecticut State Agencies." This change is suggested, in part, due to the observation that water supply utilities have occasionally recommended use of surface waters that CTDEP and/or DPH have found totally unacceptable for drinking water supply use. Reference to 25-32d-2 restricts this provision to "water companies" as it is intended as well as negating the need to define water supply plan since that task is handled in the DPH regulation. (29)
- Water Quality Classification maps should be actively updated to reflect information provided in water supply plans. Proposed updates to the maps that affect public

drinking water supplies should be made with the concurrence of CTDPH. CTDPH and CTDEP need to work together in order to achieve consistency between water supply plans and water quality classifications. Otherwise, there could be instances, such as in Miller's Pond in Waterford, where the water body is listed as Class A in the proposed map revisions but is indicated as a proposed water supply source in at least one approved water supply plan revision. (49)

- Water company's water supply plans should be actively utilized as a source for identifying potential future sources of supply, but this information should only be taken from the most recent approved five year revision of the water supply plan. The following language is suggested to address this comment:

  21. Surface waters identified as potential drinking water supplies in the Long Range Plan for Management of Water Resources prepared and adopted pursuant to Section 22a-352 of the Connecticut General Statutes shall be designated Class AA. The Commissioner may designate, with **the concurrence of the Commissioner of Public Health** other surface waters as Class AA including surface waters that (1) have been designated a proposed drinking water supply in Connecticut's Conservation and Development Policies Plan, (2) have been recommended for future use as a drinking water supply **in the current approved revision of** a water company's water supply plan**, submitted and approved pursuant to 25-32d of the Connecticut General Statutes,** (3) the Commissioner has issued a Diversion Permit authorizing use as a drinking water supply, or (4) have been identified in a request from a municipality for designation as a drinking water supply at a public hearing concerning water quality classifications. (49)

Response:

Changes have been made to improve the clarity of Standard 21. The Standard now indicates that the Commissioner of CTDEP will obtain the concurrence of the Commissioner of Public Health when designating waters into Class AA. This concurrence is appropriate under this circumstance as it is consistent with the statutory responsibility of the Department of Public Health expressed under Section 22a-1i of the Connecticut General Statutes. Additionally, language has been added to clarify that the reference to the drinking water supply plan prepared pursuant to Section 25-32d of the Connecticut General Statutes pertains to the most current and approved version of the plan.

12. LAKE TROPHIC STATUS

Comments:

- The introductory paragraph is poorly worded and the following editorial suggestions are offered for clarity: "The ranges of Total Phosphorus, Total Nitrogen, Chlorophyll-a, and Secchi Disk Transparency appearing in Table 1 below are assessed COLLECTIVELY (in conjunction with each other) to determine the CURRENT trophic state of a lake. In ADDITION TO (conjunction with) water column data, the trophic state of a lake is ASSESSED BASED ON (determined by) the percentAGE of the surface area covered by macrophytes in accordance with Table 2 below. For the purpose of determining consistency with the Water Quality Standards, the NATURAL trophic state of a lake IS COMPARED WITH THE CURRENT TROPHIC STATE (must be assessed) to determine IF the (attainable) trophic state of the lake HAS BEEN ALTERED DUE TO CULTURAL ENRICHMENT. Lakes in advanced trophic states WHICH EXCEED THEIR NATURAL TROPHIC STATE DUE TO CULTURAL ENRICHMENT (beyond their attainable) are considered to be inconsistent with Water Quality Standards. (29)
- Table 1. Within this table it would be beneficial if some of the positive benefits of healthy eutrophic lake systems could be enumerated. For example, due to low levels of productivity, oligotrophic lakes have low potential to support the large fish biomass required to sustain heavy fishing pressure. Eutrophic lakes however frequently are identified as among Connecticut's most valuable resources for recreational fishing. Water contact recreation may be limited as indicated as productivity increases. At the same time, the potential wildlife value, particularly for waterfowl and other water dependent bird species such as Bald Eagles and Osypreys, and mammals such as beavers, muskrats, otters, and others is much higher in meotrophic and eutrophic systems. Human uses such as water contact recreation may be limited, but aquatic life and wildlife uses may be enhanced. Some balance in the presentation would be beneficial. (29)
- Table 2 would benefit from reformatting for clarity. It is suggested that the left most column entries be limited to one trophic state per row rather than lumping several states together. (29)

Response:

The majority of the recommended changes have been made as appropriate.

13. NATURAL CONDITIONS

Comments:

- Natural conditions should not be defined based on economic and institutional considerations. (28, 57)
- If natural conditions include Best Management Practices and Best Management Practices at hydro dams includes run-of-the-river flow management, the impoundments with pond-and-release or peaking management should be considered impaired since Best Management Practices are not in place. (28)
- Agricultural and urban runoff are not "natural conditions" CTDEP should either move away from the inclusion of "natural condition" in the narrative standard for nutrients or exclude urban and agricultural runoff. (58)
- Standard 8 provides a definition of the word "natural" which associates the term with the normal use of the land provided best management practices are used. The term "natural" is then referenced in various narrative standards, such as those for biological condition, pH, color, and nutrients, among others. The inclusion of human activities and influences in the definition undermines the ability of the criteria to describe conditions which protect existing and designated uses. Additionally, best management practices typically consider cost and convenience and not solely the protection of uses as required under 40 CFR 131.2. CTDEP should delete the last three sentences from this standard. (53)

Response:

Agreed. In most cases, the use of the term natural within the Water Quality Standards refers to environmental conditions that are unaffected or minimally affected by anthropogenic activities. The language in Water Quality Standard 8 has been modified accordingly and a definition of "Natural Conditions" included in Appendix A of the Water Quality Standards. Changes affecting the use of the word "natural" and consideration of Best Management Practices for nutrient criteria are addressed in the comments pertaining to nutrients.

14. NO DISCHARGE ZONES

Note: The language in Standard 24 has been streamlined for clarity to succinctly identify the state statutory prohibition regarding discharge of sewage from vessels.

15. NUMERIC CRITERIA FOR CHEMICAL CONSTITUENTS

Numerous comments were received concerning the proposals for revisions to the numerical water quality criteria for toxic pollutants within the Water Quality Standards (22, 23, 27, 28, 29, 42, 46, 47, 48, 50, 51, 53). These comments ranged from general questions regarding the reasons for the proposed revisions or concerns that the proposed revisions were inconsistent with federal requirements to more specific comments indicating support for certain criteria or providing specific technical comments on criteria development on a chemical by chemical basis. In order to allow for additional opportunities for public review and discussion, CTDEP is not moving forward at this time with the majority of the revisions to the water quality criteria as proposed in December 2009, but will make a minimal number of changes as listed below.

- In the 2009 proposal as public noticed, 89 new chemicals were proposed for addition to the Water Quality Standards. The proposed 2011 revisions incorporate only three additional chemical constituents (aluminum, chloride and formaldehyde), consistent with federal guidance. These three were included because they are the subject of common inquiries concerning aquatic toxicity.

- CTDEP is adopting updated human health criteria for only those substances currently contained in the 2002 Water Quality Standards for which more restrictive federal criteria have been published pursuant to section 304(a) of the federal Clean Water Act.

- Aquatic life criteria remains relatively unchanged from the 2002 Water Quality Standards except for the establishment of 3 additional chemical constituents as noted above, and revision of criteria for only 3 chemical constituents in the 2002 Water Quality Standards for which more restrictive federal criteria have been published pursuant to section 304(a) of the federal Clean Water Act (cadmium, silver, and acrolein).

This section of the Hearing Officer's Report does not address individual comments submitted during the hearing process, but rather addresses the general concerns raised concerning the validity of the proposal for revisions to the numerical water quality criteria.

Tables comparing the updated 2011 water quality criteria with those in the 2002 Water Quality Standards and the proposed 2009 revisions to the Water Quality Standards are presented in Appendices E and F to this report, respectively.

Methodology Utilized for Updating the Water Quality Criteria as Public Noticed

Given the public interest and numerous comments received on the proposed 2009 criteria, a brief explanation of the methodology for how those criteria were derived is provided below.

In the Water Quality Standards Handbook (EPA -823-B-94-005a), EPA provides guidance for the development of Water Quality Standards, including water quality criteria. The Handbook indicates that the presence of a pollutant in a discharge is sufficient to suggest that such pollutant may affect attainment of designated uses and could reasonably be the subject of adoption of water quality criteria under Section 303(c)(2)(B). The list of chemicals for which CTDEP proposed water quality criteria in 2009 was derived from chemicals identified by EPA under Section 307(a)(1) as well as knowledge of pollutants present in point and non-point source discharges to Connecticut surface waters consistent with Section 303(c)(2)(B).

Water quality criteria for toxics were developed to support several designated uses of surface water including aquatic life use and recreational uses such as contact through fishing and swimming. In accordance with federal regulations at 40 CFR 131, water quality criteria must be based on the latest scientific knowledge. States may consider guidance issued by EPA under Section 304 of the Federal Clean Water Act for establishing such criteria or base criteria on other scientifically defensible approaches. In proposing revisions to the numeric criteria, CTDEP relied on guidance issued by EPA under Section 304 of the Clean Water Act, including:

- A: 1980 guidelines for Developing Water Quality Criteria (45 Federal Register 79318)
- B: Guidelines for the Derivation of Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and their Uses (NTIS PB85-227049)
- C. Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health – Revised Methodology (2000) (EPA-822-B-00-004)
- D. Great Lakes Water Quality Initiative Methodologies for Development of Aquatic Life Criteria and Values (40 CFR 132 Appendix A)
- E. Water Quality Standards Handbook (EPA -823-B-94-005a)
- F. Chemical Specific Water Quality Guidance Documents Issued by EPA (consult EPA website for individual references available at: EPA Water Quality Criteria web page http://water.epa.gov/scitech/swguidance/waterquality/standards/criteria/)

The proposed revisions to aquatic life criteria for inclusion in the Water Quality Standards relied primarily on EPA criteria values derived in accordance with documents A, B, D, E and F above.

For pollutants for which EPA had not directly published chemical specific water quality criteria guidance under Section 304(a) of the Federal Clean Water Act, DEP relied on EPA guidance primarily provided in reference D above. Federal Regulations at 40 CFR 132 establish Water Quality Guidance for the Great Lakes System. As part of that guidance, issued by EPA pursuant to requirements in the Federal Clean Water Act, EPA provides additional guidance on the development of Water Quality Standards, including water quality criteria. EPA established protocols for deriving Tier 2 water quality criteria for pollutants for which the full complement of toxicity data (required for 8 biological families) was unavailable. The Water Quality Guidance for the Great Lakes System: Supplementary Information Document (EPA 820-B-95-001) indicates that this protocol was derived in order to assist states with a numeric interpretation of the narrative standard for implementing "no toxics in toxic amounts".

The revisions to human health based water quality criteria proposed in December 2009 primarily relied on EPA guidance provided in documents A, C and E above. The proposed revisions consisted of updating the toxicity values, equations and exposure variables for calculating the human health based water quality criteria in accordance with EPA guidance. The Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health – Revised Methodology (2000) and the Water Quality Standards Handbook identified changes that EPA has recommended to the earlier guidance for deriving human health based water quality criteria originally published in 1980 guidelines for developing water quality criteria. Some of the changes recommended in these documents which were included in the revisions proposed in 2009 were use of a bioaccumulation factor in place of a bioconcentration factor, updating fish consumption rate estimates, and incorporation of a Relative Source Contribution factor for deriving criteria for threshold toxicants.

Additionally, for the proposed 2009 revisions, updated toxicity values were obtained from several sources and selected to reflect the most current understanding of the toxicology for each substance. Values from EPA Integrated Risk Information System (IRIS) database, California Environmental Protection Agency, the Agency for Toxic Substances and Disease Registry (ATSDR) of the United States Department of Health and Human Services, EPA Superfund Health Effects Assessment Summary Tables (HEAST) and other derivations by EPA program offices were considered. In a few cases where toxicology evaluations were not available from national sources, assessments were conducted by the Connecticut Department of Public Health. A chemical-specific determination was made for each substance as to the most current and robust source. Non-cancer toxicity values took into account major uncertainties and gaps in a chemical's database. Detailed additional information in support of toxicity values selected from sources other than the IRIS database for in calculating water quality criteria was provided in a Technical Support Document for review and comment during the public comment period.

The proposed 2009 updates to the water quality criteria, in addition to fulfilling requirements of the federal Clean Water Act, were also intended to facilitate regulatory actions which may be based on implementation of Water Quality Standards. Providing updated and additional criteria was seen as a means to streamline regulatory actions by assisting regulated parties in more quickly addressing existing regulatory requirements and providing greater clarity and certainty to the regulated community. However, the CTDEP acknowledges the regulated communities expressed concerns and is committed to a further stakeholder process before adopting the vast majority of the new compounds.

In the absence of specific water quality numeric criteria for toxic pollutants CT DEP is obligated, by the Clean Water Act, to translate the "no toxics in toxic amounts" provisions of the Water Quality Standards into regulatory activities subject to the Clean Water Act on a case by case basis as is currently done.

2011 Revisions to the Water Quality Criteria

Given public comment, and to provide for additional review and discussion concerning numeric water quality criteria, the current updates to the Water Quality Criteria have been reduced in scope from those previously proposed. CTDEP is adopting updated water quality criteria for only those substances currently contained in the 2002 Water Quality Standards for which more restrictive federal criteria have been published pursuant to section 304(a) of the federal Clean Water Act (National Recommended Water Quality Criteria published by the EPA, Office of Science and Technology within the Office of Water, dated 2009).

Criteria for three of the new chemicals proposed in 2009 (aluminum, choride and formaldehyde) are also being adopted. Aquatic life criteria for aluminum and chloride are adopted consistent with EPA guidance issued under Section 304(a) of the federal Clean Water Act. Aquatic life criteria for formaldehyde are also adopted. These criteria were developed by a permittee within Connecticut consistent with federal guidance for criteria derivation. CTDEP identified criteria for formaldehyde in 2009 and in a subsequent errata sheet. Upon additional review, it was determined that the originally proposed values, which were slightly lower than those contained in the errata, were correct and have been retained in the 2011 Water Quality Standards.

In the 2009 proposal as public noticed, 89 new chemicals were proposed for addition to the Water Quality Standards. Currently, only 3 new chemicals, as discussed above, are proposed. This change to the Water Quality Standards is made directly in response to public comments.

CTDEP has retained or revised other portions of the proposed revisions to the Water Quality Standards which pertain to water quality criteria, as follows:

- Water Quality Standard 12: language retained, but revised, to indicate that numeric water quality criteria for chemicals not listed in Appendix D of the Water Quality Standards shall be developed on a case by case basis to prohibit the discharge of toxic substances in toxic amounts in accordance with the federal Clean Water Act and narrative standards within the Water Quality Standards.
- In addition, language within Water Quality Standard 12 has been modified to indicate that CTDEP may consider additional information for exposures and effects not explicitly addressed as necessary to protect designated uses. Any such action would be in the context of a specific permitting action.
- For consistency with the nationally recommended water quality criteria, notes have been added to the table of Water Quality Criteria in Appendix D of the Water Quality Standards as follows:
    - DDT Criterion: This criterion applies to DDT and its metabolites (i.e. the total concentration of DDT and its metabolites should not exceed this value)
    - Endosulfan criterion: This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha endosulfan and beta endosulfan.
    - PCB criterion: Criteria are applicable to total PCB's (e.g. the sum of all con genes or all isomer or homolog or Arochlor analyses)
- Additionally the following notes to the table of Water Quality Criteria in Appendix D of the Water Quality Standards as proposed in 2009 have been retained:
    - Aquatic life criteria for freshwater may be used for saltwater if criteria for saltwater are unavailable.
    - For brackish waters, use the more restrictive of the aquatic life criteria for freshwater or for saltwater.
    - The addition of Indian Lake Creek and the Pootatuck River to the list of water bodies to which the Connecticut site-specific water quality criteria for copper apply.

16. NUTRIENTS

Comment:

- Since 1998 EPA has strongly encouraged states to adopt numeric criteria for nitrogen and phosphorus. While CTDEP is making progress towards collecting the data necessary

to accomplish this task, it has not developed a mutually agreed upon Nutrient Criteria Plan (State Adoption of Numeric Nutrient Standards (1998-2008), EPA-821-F-08-007, December 2008). While the lack of activity on numeric nutrient criteria development does not preclude EPA's approval of new narrative nutrient criteria, we continue to urge CTDEP to develop appropriate numeric criteria for nitrogen and phosphorus. (53)

Response:

CTDEP is actively involved in work to support development of water quality criteria for phosphorus in freshwater stream and rivers. CTDEP received grant funding from EPA in 2009 with additionally monies award by EPA in 2010 to conduct a study entitled "Aquatic Life Response to Varying Enrichment Conditions in Connecticut Freshwater Streams". As stated in the grant application, the purpose of this study is to provide information to better understand the response of the aquatic life community to varying enrichment conditions in support of the development of a scientifically and biologically based water quality criterion for phosphorus for freshwater rivers and streams affected by the inputs of excess nutrients from anthropogenic sources. This study is still on-going and the final report summarizing the study is due to EPA in the Fall of 2013, in accordance with the schedule of work approved by EPA under the grant application. The study includes measurements of nutrient levels and evaluation of biological community response in the benthic invertebrate and periphyton communities. Development of criteria for phosphorus and nitrogen in the various types of water bodies will be an on-going effort for CTDEP.

Comments:

- The proposed changes do not provide for numeric criteria to regulate the discharge of phosphorus to surface waters. Phosphorus is a pollutant with severe adverse impacts. It is a major contributor to eutrophication, which depletes water bodies of oxygen, destroys their aesthetic values, and precludes fishing and other recreation. CTDEP should revise the Water Quality Standards to include appropriate numeric criteria for phosphorus. (24, 28, 41, 58, 57)
- CTDEP's approach does not incorporate biological indicators and therefore cannot be protective of water quality. Additionally, the Phosphorus Strategy relies on statistical analyses which do not consider water quality. CTDEP should develop biologically based criteria for phosphorus. (58)
- It is important to include, on the record, a comprehensive scientific justification for the procedure used to derive the criteria for nutrients. (29)

Response:

As there are no published federal nutrient criteria that are biologically based and which adequately recognize the inherent variability associated with nutrients in the environment and

consider the unique aspects of nutrient behavior within waterbodies with different characteristics, CTDEP is undertaking a scientific study to develop nutrient criteria for phosphorus in freshwater streams and rivers. As such, it is premature to incorporate numeric criteria for nutrients within the Water Quality Standards.

Comments:

- In the narrative language for nutrients under Class AA, A and B, the wording "be limited to" should be replaced with "shall not exceed". (29)
- The proposed revisions to the Water Quality Standards are based on implementation of Best Management Practices. Additionally, the narrative standard for nutrients is also interpreted in light of Standard 8 which provides that "normal" use of the land may be considered "natural" as long as Best Management Practices are applied. While EPA is supportive of the TMDL for Long Island Sound and agrees that the proposed Freshwater Nutrient Management Strategy for phosphorus would likely result in phosphorus loading reductions, there is an insufficient correlation between the criteria established by DEP's methodology and the criteria needed to ensure protection of uses. (53)

Response:

The narrative criterion has been changed in response to other comments. The language referenced in these comments is no longer applicable.

Comments:

- For Water Quality Standard 19, rewording for clarity is suggested: "….impairment of any surface water shall BE REQUIRED BY THE COMMISSIONER TO apply Best Management Practices INCLUDING IMPOSITION OF discharge limitations or other reasonable controls (delete "that may be required by the Commissioner") on a case-by-case basis as FOUND NECESSARY BY THE COMMISSIONER (delete "necessary") to ensure maintenance and attainment…..". Although a minor point, it may be important to reinforce the concept that BMPs include treatment technology and I believe the suggested changes are consistent with that objective. (29)
- The modifications to Water Quality Standards 19 are flawed, independent of the additional phrases included in the statement. The words "point and non-point" sources describe inanimate things that do not have the capacity to "apply" requirements. The inclusion of the phrase "impair downstream waters" is not appropriate as the Commissioner is not expected to require controls as necessary to "impair downstream waters". Similarly, the phrase "as necessary" can be deleted because the Commissioner would not require Best Management Practices that were not necessary. (45)

Response:

The suggested changes have been made.

Comments:

- If EPA has not yet signed-off on CTDEP's program for phosphorus reduction, isn't it premature to adopt the strategy into the Water Quality Standards? (22)
- Appendix G does not adequately describe what the phosphorus reduction strategy actually is and what the results of implementing that strategy is expected to be. I understand that there may be voluminous supporting documents but the Water Quality Standards must include sufficient detail to illustrate how implementing the strategy will lead to permit limits for point discharge, encourage non point reduction, provide accountability to track progress, and ultimately be protective of designated uses. Some projections regarding the magnitude of the reductions anticipated as a result of implementation and the time frame for achieving those reductions would be highly valuable additions to the Appendix as well. (29)
- Appendix G Implementation Strategy for Nutrient Control describes Connecticut's strategy to implement comprehensive nutrient controls through structured application of existing narrative criteria to regulatory decision making and identifies accountability measures to ensure that progress is being made in reducing nutrients loads from current levels. This strategy has been in development over a number of years and has been reviewed favorably by professional water quality managers, environmentalists, and the regulated community as a reasonable and intelligent approach to address the problem of nutrient pollution. Adoption of the strategy and aggressive implementation is contingent to a large degree upon garnering EPA approval, or at the least tacit acceptance. (29)
- The Phosphorus Strategy as proposed is not compliant with state and federal law and is not protective of water quality or designated uses in Connecticut. It does not allow for identification of impaired streams and the establishment of appropriate water quality based limits for discharges. (58)
- The language on nutrients is weak, vague and will be difficult to enforce. (28, 57)
- We are pleased with CTDEP's efforts to manage anthropogenic nutrient loads to freshwater systems and offer the following suggestions for the Connecticut Methodology for Freshwater Nutrient Management Technical Support Document: (44)
    - Pg1: The word "available" should be inserted in the phrase "…encouraging algal growth which reduces the light available to plant leaves and stems."
    - Pg 2: The word "water" should be inserted in the phrase, "…goals for total phosphorus that are fully protective of water uses."

- Pg 2: Recommend change to parenthetical note to read, "(streams without or with very little human disturbance)."
- Table 1: The phrase "agricultural land" should be added to the box which reads, "Upstream Drainage Area Contains Greater than 25%"
- Pg 3: The word "stream" should be "streams" in the phrase, "…wetlands function like forests by filtering nutrient loads to surrounding streams."
- Pg 3: The word "than" should replace the word "that" in the phrase, "…quantities of sediment that may be of different composition than the 'natural' underlying sediment"
- Pg 6: The parentheses around Cleland 2003 should be removed, Table 3 should be capitalized and the subscription of "I" should be consistent in the text.
- Pg 8: The word "than" should be replaced with the word "that" in the phrase "anthropogenic eutrophication of a resource that may not be currently assessed…."
- Figure 9: The points for the Waste Water Treatment Plants category require explanation. None of the other categories have points marked outside of their standard deviations.

- The Freshwater Nutrient Management study indicates that future development that will increase the phosphorus load in a watershed will implement Best Management Practices. This implies that future development will be reviewed and BMPs required but this is not always the case. Therefore, the assumption made in the Freshwater Nutrient Management study that BMPs will be implemented needs to be retracted. (44)
- The Phosphorus Strategy assumes that sewage treatment plants can receive less restrictive limits based on the assumption that loading reductions for phosphorus from nonpoint sources will achieve a 60% loading reduction due to implementation of Best Management Practices. There is no reasonably enforceable means to achieve such reductions. CTDEP should establish a means to require such controls on nonpoint sources. (58)
- There should be more explanation for decisions made in the design of the Freshwater Nutrient Management study. Why was a ¼" storm used to evaluate change in flows associated with storms? The logic needs to be provided so that in the future this work can be used/adapted by future generations. Also, there should be an explanation as to why wastewater treatment plants that contribute 2% and not another percentage were considered to be significant. (44)
- CTDEP has proposed low enrichment conditions are associated with the lowest 33% of the streams in the state when such streams are ordered for phosphorus concentrations. This is different that EPA guidance with suggests that the 5^{th} to 25^{th} percentile of streams should be used. Neither case is based on scientific data to substantiate the

determination. CTDEP should develop a new cutoff for determining low enrichment conditions based on sound science and water quality data. (58)

- Within the Phosphorus Strategy, CTDEP characterized streams as low, medium and high priority for enrichment concerns. EPA guidance recommends that the 5th percentile of streams be initially placed in a low priority category. CTDEP proposed 48% of the streams be places in a low priority category. CTDEP should revise the strategy to be consistent with EPA guidance or based on sound science and water quality. (58)
- While the Phosphorus Strategy represents a good beginning to control phosphorous statewide, its focus is on the derivation of permit limits based on cost and feasibility. This analysis does not belong in the Water Quality Standards which should focus on acceptable water quality, not permit limits. (58)
- We concur that policy for phosphorus should be evaluated on a statewide basis and that prioritizing water bodies based on enrichment conditions is appropriate, along with application of antidegradation policies to low enrichment situations. (58)
- The Phosphorus Strategy presents effluent limitations for treatment plants in terms of Best Management Practices. The limits proposed by CTDEP have the characteristics and requirements of traditional effluent limits and should be treated as such. Additionally, the effluent limits should be based on water quality protection, not on economic and technical feasibility. (58)
- The Phosphorus Strategy provides seasonal limits for phosphorus applicable to April through October. While algae generally does not bloom in the winter, phosphorus discharged to the surface waters can be stored in sediments, especially in impoundments and lakes, and later contribute to algal blooms. In Massachusetts, the Environmental Appeals Board remanded a permit because there was no reasonable justification for seasonal application of phosphorus limits. CTDEP should provide scientific justification showing that phosphorus discharged in unlimited quantities during the winter is not entering sediments and contributing to water quality impairments later. Otherwise, CTDEP should impose limits on phosphorus year-round. (58)
- There appears to be an inconsistency in how standards for phosphorus (non-numeric, watershed based) and sodium (numeric value, single concentration) are developed in Class AA waters. Sodium values vary throughout the state based on geology, distance from the coast and roadway deicing impacts. The argument used to develop watershed based standards for phosphorus appears to be equally applicable to sodium. (52)
- CTDEP's inclusion of a Nutrient Reduction Strategy with regards to phosphorus is encouraging but there are concerns about the potential permitting impasse for existing publicly-owned wastewater treatment facilities due to the lack of agreement on numeric phosphorus criteria between CTDEP and EPA. However, the use of a "best attainable reference approach" together with a rigorous implementation of the Antidegradation policy, stringent requirement of Best Management Practices and the monitoring and assessment for establishing a TMDL is a strong first step in addressing

the nutrient overload in Connecticut waters. We look forward to the adoption of effects-based criteria for phosphorus in the future should these strategies prove ineffective in achieving full support of designated uses. (56)

- Watershed export modeling is a great tool and using such a model to develop a nutrient reduction strategy is a good approach. However, caution should be used to make sure that loads are correctly attributed to the watershed. In particular for phosphorus, point sources and internal sediment recycling are conditions that may be a problem. The studies used to develop land use cover type exposures need to be examined to determine how the load calculations are derived. Samples from streams may be less influenced by internal loading but may be more variable and difficult to integrate over time. There can be a lag between reduced watershed load and lower phosphorus in lake water due to retention of phosphorus in sediments. I recommend reviewing multiple studies when developing values for land use exports, particularly work in Connecticut and surroundings (see for example Field et al 1996, Estimating the Effects of Changing Land Use Patterns on Connecticut Lakes. Journal of Environmental Quality 25:325-333.) (52)

Response:

CTDEP is actively involved in work to support development of water quality criteria for phosphorus in freshwater stream and rivers. As detailed above, the Nutrient Reduction Strategy for Freshwaters: Phosphorus and Appendix G in the proposed Water Quality Standards as public noticed are withdrawn. The narrative criterion has been revised consistent with comments received during the public hearing and CTDEP will continue to work towards developing numeric criteria.

Comment:

- If numeric criteria are not adopted, the CTDEP should describe unacceptable conditions associated with nutrient pollution and require closer coordination with Permitting and TMDL Programs. (41)

Response:

Development of numeric criteria for phosphorus and nitrogen in the various types of water bodies will be an on-going effort for CTDEP into the future. CTDEP will consult with stakeholders while continuing to work with EPA in developing appropriate implementation strategies.

Comment:

- Standards for nutrient should be distinct from drinking water standards and should be technically supported. (28, 57)

Response:

Water quality criteria for nutrients which are protective of aquatic life uses are distinct from criteria established to protect drinking water uses.

Comments:

- Algae blooms caused by phosphorus affects the quality of drinking water supplies and can cause operational issues. While the ability for CTDEP to influence local land use decisions is limited, we support the greater emphasis on nutrient loading proposed and encourage CTDEP to work with municipalities to work towards meeting and maintaining the proposed nutrient criterion, especially in Class AA waters. (43)
- On slide 31 of the PowerPoint presentation provided by the CTDEP in support of the proposed revisions to the Water Quality Standards, there is a graph depicting the multimetric index (derived from benthic invertebrates) from low order streams plotted against phosphorus concentrations. There appears to be an inverse relation between total phosphorus and MMI score in this data although total phosphorus does not explain all the variability. Caution should be used to avoid over interpretation of MMI data for streams in developing water quality standards for all fresh waters. Conditions in other fresh waters such as lakes and ponds or larger rivers may differ significantly from what is found in the smaller streams sampled in these studies. Efforts to protect freshwater quality need to account for differences in conditions between different water bodies and waterways. (52)

Response:

Comments noted.

Comment:

- The nutrient management strategy for phosphorus focuses on fresh waters. Shouldn't facilities discharging to the Connecticut River and Long Island Sound also be subjected to regulation of the amount of phosphorus in their discharge? (44)

Response:

Currently, CTDEP is focusing efforts on evaluating phosphorus in freshwater rivers and streams. In the future, additional work will be done to evaluate appropriate levels of phosphorus in other types of water bodies, including large rivers and marine waters. Similarly, future work will be conducted to evaluate appropriate levels of nitrogen in the various types of water bodies. Once CTDEP has a better understanding of acceptable nutrient levels in each type of water body, changes can be made to the Water Quality Standards as appropriate.

Comments:

- The substitution of the term "eutrophic" with the term "culturally enriched" is not an improvement. The definition of the term "culturally enriched" should be modified to replace the phrase "from human sources" with "due to human activity". Also, the words "input into" should be replaced with "to". The use of the terms"severe" and "extensive" are relatively subjective. (45)
- The term "cultural enrichment" should be replaced with "cultural eutrophication". Although there is a history of usage for both terms in this context, cultural enrichment is also often used in a completely unrelated context of learning about other cultures, and has the potential to be confusing. The term 'eutrophication' has historical precedence for being used in the Water Quality Standards and connects back to the tropic states for lakes presented in the document. (52)

Response:

Due to changes in the narrative criterion for nutrients, this term is no longer needed and has been deleted from the Water Quality Standards.

17. APPLICATION OF WATER QUALITY STANDARDS

Comments:

- The proposed Water Quality Standards include a water quality criterion for aluminum. Since drinking water utilities use alum in their treatment processes, there could be aluminum in wastewater discharges from drinking water utilities. We request that CTDEP work closely with the drinking water industry if permit limits may change as a result of this proposed criterion. (43)
- Some public water systems apply copper sulfate to control algal blooms in reservoirs. There is a concern that such usage may be in jeopardy due to stringent limitations on the discharge of copper from sewage treatment plants. A whole-watershed solution should be sought, in collaboration with both CTDPH and CTDEP, to evaluate newer technologies and studies to deter algal blooms and cyanobacteria and obviate the need for the use of copper sulfate in the reservoir. This would also eliminate the need to use a large section of Class 1 and Class 2 watershed land for backwash water infiltration lagoons and permanent sludge drying and storage areas. Phased in solutions to this problem should be sought with the allowance of adequate time to work through the most appropriate long term solution that is protective of public health and the environment. (49)
- To minimize leaching of lead and copper from pipes into the water supply, public water systems commonly use corrosion inhibitors, approved and monitored by the

Department of Public Health. In many instances, this is part of a treatment technique mandated due to previous lead and/or copper Action Level exceedances. Most of these inhibitors are phosphate-based and can include aluminum and/or zinc. Additionally, aluminum based chemicals are typically added during the conventional surface water treatment process to aid in coagulation. The Department of Public Health is concerned that surface water treatment plants, especially when municipally owned along with a municipally owned POTW, may be pressured to deviate from the optimal treatment for public health protection to meet more stringent POTW discharge standards. The Department of Public Health strongly supports reductions in aluminum, phosphate and zinc concentrations of discharges to Connecticut's waters, but would like to stress that a collaborative, long-term implementation, that includes a knowledge and consideration of the entire watershed, will ensure that water systems are not forced to abandon what may be the optimal treatment for reduction of lead, copper, pathogens, etc. in drinking water provided to the public. The language in CGS Section 22a-426 ("Be consistent with the health standards as established by the Department of Public Health") is applicable here and should be considered whenever discharge standards are applied for those chemicals that are used to treat drinking water. (49)

Response:

Water quality standards are established in accordance with federal and state law. In implementing the standards, CTDEP is committed to working with the Department of Public Health, water supply utilities and NPDES permittees to collaboratively resolve environmental issues such as the need to maintain a viable and safe public drinking water supply while protecting aquatic ecosystems in Connecticut. The goal is to allow all established uses of Connecticut waters by working together to find solutions and balance necessary actions to supporting these varying uses.

Comment:

- Continuous industrial wastewater discharges, such as those released by the Millstone Nuclear Power Station, are prohibited under the current SA designation. We congratulate the CTDEP for maintaining this standard but condemn the CTDEP for allowing the owner and operator of Millstone to disregard this requirement. We urge you to bring this polluter into compliance with this provision of the Water Quality Standards. (54)

Response:

This concern was evaluated under the recent permit reissuance conducted for this facility. Please refer to the Millstone hearing proceedings to further understand the permit considerations for this facility.

Comment:

- The adoption of the federal water quality criteria for nonylphenol is not likely to be a technical or economic burden on either the CTDEP or the local business community in Connecticut. (23)

Response:

Comment noted.

Comment:

- Changes, such as the new ranges of acceptable temperatures for discharges, could necessitate significant blending with potable or raw reservoir supply to adjust the temperature of discharges to the allowable range. There is concern that this may have an impact on the safe yields and/or available supply for public water systems that may already be operating in a supply deficit. To that end, this is another area that the DPH can work with the CTDEP to develop a balanced approach. (49)
- It is unclear how changes to the thermal criteria will be administered. (22)

Response:

CTDEP is withdrawing proposed changes to temperature criteria at this time and will revert back to the criteria within the 2002 Water Quality Standards. However, it should also be noted that for any discharge with a thermal component, there is the opportunity, under the Water Quality Standards, to establish a mixing zone for assimilation of thermal components of the discharge. This would be evaluated and assigned, as appropriate, on a case-by-case basis consistent with the provisions of the Water Quality Standards. Blending of potable and raw water is not the only solution that could be implemented if one were needed. There are other options that could be evaluated which would not impact safe yields for public water systems.

Comment:

- The proposed revisions to the temperature criteria are an improvement over the current criteria for temperature. However, the provision to allow a 4 ^{o} F increase in instream ambient temperature is flawed and unprotective of cold water fisheries, including trout, since it is not applied based on a fixed baseline temperature within the stream. This allows successive dischargers to incrementally raise the temperature within a stream, beyond what is lethal to trout (or cool or warm fisheries). The language should be modified to state: "In any case, the ambient instream temperature should not be raised by more than 4 degrees F, and in no case may the ambient instream temperature be raised in excess of the numeric criteria cited above." (24, 25, 55, 58)

Response:

Since ambient stream temperatures fluctuate seasonally and even daily within any water course, it is not appropriate to establish a fixed baseline temperature. The narrative portion of the temperature criteria focuses attention on preventing unacceptable deviation from the natural temperature regime of the water body. This is protective of the fish populations that may occur within each water body as it is intended to maintain natural conditions. The additional requirement to limit acceptable temperature increases above background primarily relates to the size of any allocated Zone of Influence, since any elevated temperatures would be expected to continue to dissipate within the river until equilibrium is reached. At this time, the $4^{o}F$ increase is proposed for retention, however, CTDEP intends to conduct a study to evaluate mixing characteristics of various effluents which have not yet been subject to evaluation under Section 316(a) of the federal Clean Water Act to further evaluate potential effects on aquatic life communities and determine if in the future the allowable temperature increases should be revised.

Comment:

- Section 316(a) of the Federal Clean Water Act allows for a thermal variance of existing effluent limitations if it can be demonstrated that a balanced indigenous population/community is maintained and protected in the water body. This provision should be added to Item 10 on page 3 of the Water Quality Standards. (47)

Response:

Water Quality Standard 10 establishes the provisions which must be considered when establishing a Zone of Influence for a discharge while Section 316(a) of the federal Clean Water Act provides a variance procedure for establishing effluent limitations for thermal discharges. The language under 316(a) allows for an alternative effluent limit under appropriate conditions. The availability of such a variance procedure is not germane to establishing the Zone of Influence within the Water Quality Standards and can and has been considered under a case-by-case basis for certain thermal discharges within the State. That said, the Zone of Influence provisions of the Water Quality Standards are compatible with the goals of Section 316(a) of the federal Clean Water Act which requires that any site-specific temperature limit "assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on that body of water." There is sufficient flexibility built into the Zone of Influence provision to the Water Quality Standards to accommodate site-specific considerations such that direct mention of variance procedures under the federal regulations is not appropriate or necessary.

18. SEWAGE DISCHARGES IN CLASS A WATERS

Comment:

- Please explain the objective of/need for the proposed allowance of treated sanitary discharges to Class A waters. (28, 57)

Response:

This section is intended to facilitate permitting of discharges of highly treated domestic sewage to waters where such a discharge represents the only alternative currently available to mitigate an existing pollution problem occurring at that location.

Comment:

- If the intent is to address only existing discharges that exist today due to failing systems that should be clearly stated, the proposed language is not specific enough to only allow AT repairs to existing, failing treatment systems and may permit activities beyond the intent of the modification. Further clarification should be provided as to how the standard will be reviewed and implemented including sewage treatment and disposal alternatives, technical or economical feasibility, use of the terms new or increased growth or change in use that impact on-site wastewater, and under what scenarios that discharges to Class A waters would be permitted. CTDEP should develop regulations that govern wastewater intensification activities on sites that are authorized and that are tied to state funded wastewater projects. The Commissioner of DPH and the Local Director of Health should be consulted on matters that require a finding that the discharge is protective of public health (49)

Response:

This section is intended to facilitate the mitigation of existing pollution problems and only allow permitting of discharges of highly treated domestic sewage to waters where such a discharge represents the only alternative currently available to abate existing pollution. The conditions listed are intended to set the basic criteria CTDEP would consider when applying the discharge allowance when implementing the NPDES permitting regulations. CTDEP's existing wastewater permitting authorities will be used to implement the standard which requires protection of both the environment and public health and has provisions for public notice. In order to further clarify the narrow intent of the new provisions, revisions have been made to indicate that the pollution from a domestic sewage disposal system must have existed prior to February 28, 2011 and not be associated with a community pollution problem. Additionally, such discharge must be treated or controlled to the maximum extent practicable in the subsurface. CTDEP will consult with the Commissioner of DPH. Nothing in this standard shall preclude the CTDEP Commissioner from requiring the permittee to develop a schedule and plan to eliminate the

discharge to Class A or SA waters should future conditions provide a technically and economically feasible alternative to the discharge.

Comments:

- The proposed changes would eliminate the affected Class A waters from consideration as future drinking water supplies as they would no longer be compliant with CGS 22a-417. Since much of the water available for public drinking water supplies is proposed to be allocated through the minimum stream flow regulations, further reducing the resources available for public drinking water source development may create a public health and safety crisis where there is no legally available water to serve existing human needs. (49)
- The proposed language to allow treated domestic sewage discharge to Class A surface waters does not limit application of this provision to a small number of currently existing domestic wastewater discharges where subsurface disposal is not technically or economically feasible, as is our understanding from discussions with DEP. Also, Class A waters affected by such discharges would be precluded from use as drinking water supplies due to statutory prohibitions. (43)

Response:

Class A waters make up the majority of the waters of the state and are essentially the default standard protection for waters, including protection for use as potential public water supply. Also all Class AA public water supply waters are excluded from this provision. The estimated numbers of sites which may be permitted under the new standard are small and, in addition, a condition is that they must be eliminated when a future alternative becomes available.

Comment:

- Opposition is expressed to the revisions to Standard 9 as being contrary to Connecticut's overriding anti-degradation goals and policies by permitting discharges to critical drinking water supplies and our highest quality water bodies. (41)

Response:

Discharges of treated domestic sewage to Class A waters will be permitted only under a limited set of circumstances and will be subject to the water quality standards including the anti-degradation policies. Also all Class AA public water supply waters are excluded from this provision. No new or increased discharges are allowed, and discharges will only be permitted to facilitate mitigation of existing pollution problems in very limited cases. Since it is expected that water quality will improve following issuance of a permit to mitigate an existing problem, no designated uses will be lost or anti-degradation policies violated.

Comment:

- In section 9(A) I suggest addition of the phrase that appears in Section 9(B), "subject to the provisions of Section 22a-430 of the CGS", at the end of the first sentence for consistency between the subsections and to underscore the principle that discharges to both Class A and Class B waters are permitted pursuant to the permitting regulations, not the Water Quality Standards. (29)

Response:

This reference has not been added as it is not necessary.

Comment:

- This section is clearly intended to facilitate permitting of discharges of highly treated domestic sewage to waters where such a discharge represents the only alternative currently available to mitigate an existing pollution problem. The distinction between waters designated for use as a public water supply and those not so designated in Connecticut is based on statutory restrictions, established by State law, that currently prohibit discharge of domestic sewage to waters utilized for drinking water, not on any measure of actual water quality. For the Commissioner to authorize a permit to discharge treated domestic sewage to a surface water that is currently impacted by that same source therefore does not restrict the potential for that water to be used in the future as a drinking water supply provided the permit mandates treatment sufficient to restore that surface water to a quality that would support use as a drinking water supply. The proposed addition to Water Quality Standard 9 provides a high level of assurance that discharges of treated domestic sewage to Class A waters will be permitted only under a limited set of circumstances. Importantly, no new or increased discharges are contemplated and discharges will only be permitted to facilitate mitigation of existing pollution problems. (29)

Response:

For the Commissioner to authorize a permit to discharge treated domestic sewage to a surface water that is currently impacted by that same source does not restrict the potential for that water to be used in the future as a drinking water supply provided treatment is sufficient to restore that surface water to a quality that would support use as a drinking water supply. Also see responses above regarding limitations on such discharges. However, note that this section is not intended to modify longtime state policy which prohibits the discharge of any sewage into any waters which are tributary to an existing drinking water impoundment or any proposed drinking water impoundment.

Comment:

- The following suggestions are offered to clarify the intent of this section:
  - insert "pre-existing" between "abate" and "ground water" to reinforce the restriction on permitting such discharges to situations where a pollution problem exists.
  - reword #4 to read "that any such discharge shall not be utilized to support any new source or to accommodate any increase in an existing source of pollution".
  - in #5 change "possible" to "feasible" and reword to read: "maximum extent feasible and in all cases to a level the commissioner may require such discharge to be eliminated or additional treatment to be provided should a technically and economically feasible alternative to such discharge to a surface water with a classification of A or SA be developed in the future. (29)

Response:

Section has been revised to incorporate intent of recommendations and clarify wording.

19. STORMWATER

Comment:

- Storm water has been identified as a major source of pollution to surface water. Criteria should be established for the quality of surface runoff at the point of discharge that would be applicable until the DEP establishes TMDLs for specific chemicals in specific water bodies. (30)

Response:

The Water Quality Standards do not specify acceptable levels of pollution per se. Rather, the Water Quality Standards define the designated uses and supporting numeric and narrative criteria for waters within Connecticut. They have been and will continue to be used as the basis for regulatory limitations, including permit limits for storm water discharges. Individual regulatory programs, such as the National Pollution Discharge Elimination System program administered by CTDEP establish the necessary limitations and controls for various activities within different water bodies. These limitations and controls represent discharge specific requirements and consider the Water Quality Standards such that authorization of activities within the State are consistent with the uses, criteria and goals established within the Water Quality Standards.

20. STREAM FLOW

Comment:

- CTDEP should adopt a narrative standard for stream flow that requires flows adequate to supporting existing and designated uses be maintained. (28, 41)

Response:

Stream flow is a physical attribute of aquatic ecosystems. Water Quality Standard 1 addresses this concern. The language in Water Quality Standard 1 remains unchanged from 2002.

Comment:

- Water Quality Standards 11**.** One minor change is suggested. Replace the phrase ”has been historically” with “IS” in the first sentence. The relevant concern to supporting aquatic life use is how flow in a surface water is currently regulated, or will be regulated during the term of the permit, not what has transpired in the past. (29)

Response:

The change has been made.

21. TEMPERATURE CRITERIA

Comments:

- The current temperature Water Quality Standard states "There shall be no changes from natural conditions that would impair any existing or designated uses to this Class and, in no case exceed 83 degrees F, or in any case raise the temperature of the receiving water more than 4 degrees F. During the period including July, August, and September the temperature of the receiving water shall not be raised more than 1.5 degrees F unless it can be shown that spawning and growth of indigenous organisms will not be significantly affected." Suggest that the proposed wording be removed and replaced with the current language provide in quotes above. (47)
- The Technical Support Document (TSD) for Water Temperature infers that the proposed maximum daily mean of 82^{o}F for marine waters is based on a review of the EPA criteria for temperature in the Gold Book and the ambient temperature data for Long Island Sound. However, information is not provided to support this change and the current temperature criteria of 83^{o}F was accepted into the current Water Quality Standards in 2002, six years after the Gold Book was published. (47)
- The Technical Support Document for Water Temperature (Page 8, Table 9) proposes an hourly maximum of 83°F while it presents a short-term maximum of 87°F in the Gold Book (Page 7, Table 7). Again, no narrative discussion is provided to support the change.

It appears CTDEP is choosing the lowest number available without consideration of the scientific basis or site-specific conditions. (47)

- Appendix A provides no temperature criteria for marine species. Suggest that the Appendix be updated with information available in the scientific literature. (47)
- CTDEP proposes that the temperature of the receiving water not be raised by more than 2°F. However, the Technical Support Document for Water Temperature (Page 7) contradicts the proposal and supports retaining the current criterion for incremental increases: "During the months of July, August, and September, the temperature increase to marine waters is 1.5°F. At all other times, the allowable increase in marine waters is 4°F.'' The current criterion should be maintained and only altered by a successful 316(a) demonstration. (47)
- In the Technical Supporting Document for Proposed Revisions to Connecticut Water Quality Standards: Water Temperature (January 28, 2010) the acceptable incremental temperature increase for marine and estuarine waters is identified as 1.5 ^{o} F during July, August, and September and 4 ^{o} F at all other times. However, the temperature criteria for marine waters in the proposed Water Quality Standards (pages 27 and 29) indicate that the allowable temperature increase is 2^{o} F. Please provide an explanation or technical supporting information for this discrepancy. (27)

Response:

The following table is taken from the Gold Book (Quality Criteria for Water 1986, EPA 440/5-86-001)

	Short-term Maximum	Maximum True Daily Mean*
Sub tropical regions (south of Cape Canaveral and Tampa Bay, Florida, and Hawaii	32.2° C (90° F)	29.4° C (85° F)
Cape Hatteras, N.C., to Cape Canaveral, Fla.	32.2° C (90° F)	29.4° C (85° F)
Long Island (south shore) to Cape Hatteras, N.C.	30.6° C (87° F)	27.8° C (82° F)

(* True Daily Mean = average of 24 hourly temperature readings.)

There is no published temperature data for Long Island Sound (north shore). The current standard of 83 °F *for Class SA and SB marine waters appears reasonable given the above table. CTDEP is withdrawing proposed changes to temperature criteria and will continue to utilize the standard and criteria in the 2002 Water Quality Standards.*

Comments:

- It is important to include, on the record, a comprehensive scientific justification for the procedure used to derive the criteria for temperature. (29)
- The criteria for each group should protect the most sensitive species. The proposed criteria are calculated using a geometric mean for all fish species within the group which does not adequately protect those species which require a lower maximum temperature. The temperature identified as protective for the most temperature sensitive species within each group should be selected. (53)
- It is not clear that the most sensitive life stage is protected or listed for all of the species in Table 1-3. In addition to identifying the most temperature-sensitive species of each group, EPA recommends that CTDEP identify the temperature requirements of each life stage of that species, and the time period when they are likely to be present. (53)
- The column headings in tables 1, 2 and 3 do not, in all cases, clearly relate to the subheadings beneath them. Specifically, the headings “Maximum Weekly Average Temperature Spawning” and “Maximum Temperature Embryo Survival” relate to the “Fall” season for only a couple fall spawners, such as brook and brown trout. Most species listed in these tables spawn in the spring, or early summer. EPA recommends that DEP correct Tables 1,2 and 3. (53)
- EPA believes that yellow perch and alewife belong in the Cool Water class instead of the Warm Water class. Also, anadromous species such as American Shad should be classified as Cool Water species as well. (53)
- CTDEP states on Page 1 of the Technical Support Document "...EPA includes temperature criteria but does not provide numerical values. Instead, the table recommends the adoption of species dependent criteria for water temperature..." Suggest that this is the most scientifically justifiable approach and can be accomplished by performing a 316(a) demonstration where the Water Quality Standards are exceeded. (47)

Response:

These comments reflect the widely different recommendations made by the commenters on the proposed water quality standards regarding temperature for surface waters. EPA recommends that the CTDEP adopt more stringent temperature standards, while another commenter opposes adoption of revised numeric values. Questions were also posed regarding applicability and implementation of the proposed temperature criteria.

CTDEP is withdrawing proposed changes to temperature criteria and will continue to utilize the standards and criteria in the 2002 Water Quality Standards. CTDEP recognizes the need to further document conditions specific to Connecticut and establish implementation protocols.

CTDEP is committed to moving towards an approach that determines thermal tolerance of various fish species and establishes thermal classes (coldwater surface waters, cool water surfaces waters and warm water surface waters) for freshwater streams and rivers.

One commenter cited a passage from the first page of the Technical Support Document (TSD) concerning temperature about EPA not providing numeric criteria for temperature, in favor of species specific criteria. This commenter urged that this was the most scientifically justifiable approach. However, even though the EPA table ("the Table") noted in the TSD does not itself contain numeric limits or values for temperature, it does make reference to other sources, sources listed in the TSD. It is clear that EPA intends for states to derive numeric values based upon these sources. So for example, with respect to freshwaters, based upon the sources referenced in the Table, in general EPA recommends the establishment of temperature criteria for the species commonly found in the receiving waters that would be affected by a thermal discharge into such waters. With respect to marine waters, the sources referenced in the Table are more specific and do provide actual temperatures that should not be exceeded on an average daily and maximum hourly basis. CTDEP used the framework drawn from the sources referenced in the Table to develop its proposed December 2009 water quality standards and will continue to look towards federal guidance as we address temperature.

EPA commented that in applying these sources, the Department did not go far enough. Specifically, EPA recommends that the criteria for each group of waters should protect the most sensitive species in such waters. CTDEP recognizes the importance of protecting the most sensitive species and intends to move in that direction. To that end, CTDEP will be undertaking additional thermal studies. The results of these studies will allow for further evaluation and identification of temperature regimes throughout the state, predictability of implementation, and inclusion of stakeholders.

Finally, a commenter noted that a demonstration under 316(a) is available when temperature limits noted in the water quality standards will be exceeded. CTDEP notes that for certain point source discharges, under 33 U.S.C. § 1326(a) ("section 316(a)"), a variance from a thermal effluent limit, including limits that may be established or are based upon the water quality standards, remains available. Any person seeking such a variance would, of course, need to make the demonstration required under section 316(a).

Comments:

- In the section dealing with cold water habitats, suggest that the qualifier NATIVE be inserted in front of "cold water fish species". (29)

- In the section dealing with cold water habitats, Connecticut's only native trout, the Brook trout (actually a char) should be provided as the example rather than the general reference to the Salmonid family of fishes. Consideration should be given to listing additional cold water indicator species. (29)
- Most of the changes to the temperature criteria are supported, but recommend that the criteria consider not only species that are currently present in the water body, but also potential future aquatic life that could ultimately be supported within that waterbody. (41)

Response:

Appendix F has been withdrawn. See the preceding discussion and responses.

Comment:

- Reconsider the time periods established for the temperature criteria with a goal of making these periods consistent with the bioperiods proposed for establishing stream flow standards in a separate action currently ongoing at CTDEP. While there may not currently be sufficient scientific justification to establish 6 temperature regimes as was done for stream flow, the possibility of establishing "temperature-applicability" periods that do not split a bioperiod should be explored. Temperature and stream flow are arguably among the most important environmental variables influencing the distribution and abundance of fish species. Both parameters tend to exhibit predictable annual cyclic trends and many species of aquatic organisms have adapted life cycles in response to this pattern. CTDEP should consider developing consistency between temperature criteria and stream flow standards as a necessary step towards integrated water resource management. (29)

Response:

It is premature to tie temperature criteria to bioperiods within the proposed streamflow regulations. Consideration of the scientific underpinnings of those bioperiods as they relate to temperature would need to be carefully evaluated.

Comment:

- The terms "average weekly temperature" and "maximum daily temperature" should be defined for purposes of the Water Quality Standards. (29)

Response:

As these terms are no longer used within the Water Quality Standards they have been deleted.

Comment:

- Within and downstream of both natural and man-made lakes and impoundments, the proposed temperature standards may be exceeded due to the physical characteristics of these water bodies. This has raised concerns for dam owners needing to perform maintenance activities or for facilities that do not have the ability to release water below the seasonal thermocline. Water managers may choose not to stock their water bodies with trout so as to avoid conflict with the proposed criteria. The temperature criteria should be revised to recognize the natural and physical limitations associated with lakes, impoundments and their downstream areas with respect to water temperature. (43)

Response:

Water quality criteria do not apply to natural conditions or reservoir conditions unrelated to regulated discharges.

Comment:

- Objection is raised to the proposed relation of standards governing thermal discharges within SA-designated zones. It appears that the standards are being relaxed to accommodate Millstone's discharges and planned/recently implemented increased thermal discharge. The proposal to relax temperature standards is impermissible in light of the governing legislative mandates of the Connecticut Environmental Protection Act and the guiding principles of the Water Quality Standards themselves. These standards should be strengthened and enforced. (54)

Response:

Any changes to the Water Quality Standards were not proposed to accommodate activities at the Millstone power plant. Please refer to the Millstone hearing proceedings to further understand the permit considerations for this facility.

22. WORDING CHANGES

Comments:

- In Water Quality Standard 14 replace "he or she" with "the Commissioner". (29)
- In Standard #23, replacing the word "nature" with "characteristics" would be more accurate in this usage. (29)

Response:

The suggested changes were made.

23. ZONES OF INFLUENCE

Comments:

- Several concerns are raised regarding Water Quality Standards 10, which addresses Connecticut's "mixing zone" policy. First, the phrase "provide a maximum of 100:1 dilution ratio for any discharge" injects uncertainty. Is the intent to evaluate this provision on a pollutant by pollutant basis? Is it appropriate to evaluate all pollutants (e.g. persistent bioaccumulating pollutants, pollutants for which human health is a concern following long exposure, threshold pollutants, carcinogens, nutrients, ammonia, pH, DO, temperature, acute and chronic numeric criteria, acute and chronic whole effluent toxicity) under the same hydrologic conditions (e. g. 7Q10)? Are the averaging period, duration of exposure, and frequency of exceedences concerns similar for all pollutants? What discharge flow rate, pollutant concentration or mass should be used to calculate the dilution ratio? Is it appropriate to use the same method of calculation for intermittent discharges such as storm water as is used for continuous discharges such as might originate from a sewage treatment facility? Recommendation regarding this phrase is to delete it and continue to rely on the judgment of CTDEP staff to provide the necessary scientific and technical support necessary to establish reasonable zones of influence. The allocation of a zone of influence must be a case-by-case judgment and subject to the public participation process associated with permit issuance under C.G.S. 22a-430. (29)
- Suggest addition of the phrase "UNDER A RANGE OF HYDROLOGIC CONDITIONS" following "…and assimilation of waste" in the fifth sentence of this standard. This change would provide additional support for ongoing staff efforts to evaluate discharges under a variety of flow conditions to insure zones of influence are protective of aquatic life use. Suggest consideration be given to deleting the "guideline" concerning allocation of 25% of cross sectional area or volume of flow for thermal discharges. (29)
- The proposal to limit the dilution factor that can be used for discharges to surface waters to a maximum of 100:1 dilution is very restrictive considering the relatively small discharge flow rates associated with typical groundwater plumes and the fact that stream flows are already conservatively limited for dilution purposes under the RSRs to 25% of the 7Q10 flow rate. This additional limitation has not been scientifically justified, is overly conservative, and should be removed. (48, 47)
- The Water Quality Standards contains the following language: "The zone of influence for assimilation of a thermal discharge shall be limited to the maximum extent possible." EPA recommends that the word "thermal" be stricken from this sentence to ensure that

the Zone of Influence is minimized for all discharges, regardless of the maximum allowable dilution factor. (53)

- Support numerical limits as proposed for Zones of Influence. (28)
- It should be explicitly stated in Water Quality Standard 10 that a 316(a) variance provision for effluent limitations for thermal discharges should be allowed. (47)

Response:

The suggested language regarding reference to a range of hydrologic conditions has not been added since Water Quality Standard 11 identifies the appropriate flow regimes for applying the provisions of the Water Quality Standards. The language limiting the zone of influence to 100:1 dilution when appropriate has been deleted. Language in Water Quality Standard 10 has also been modified to clarify that all allocated zones of influence be limited to the maximum extent possible.

Water Quality Standard 10 concerns the establishment of a zone of influence ("ZOI"). A ZOI allows a discharge to mix with and be assimilated in an allocated portion of a receiving water. The area and volume of a receiving water allocated to a ZOI is determined by the unique physical, chemical and biological characteristics of both the discharge and the receiving waters. The considerations for establishing a ZOI are set forth in water quality standard 10.

Section 316(a) of the federal Clean Water Act, 33 U.S.C. § 1326(a), allows a variance from an effluent limitation regarding the thermal component of a discharge. This would typically occur where the owner or operator of a facility seeks to demonstrate that an effluent limitation regarding the thermal component of a discharge is too low. A variance, allowing such an entity to discharge at temperatures exceeding the effluent limitation, can be granted under section 316(a), provided the entity seeking a variance makes the requisite demonstration.
While there may be some overlap in the justifications or requirements regarding the establishment of a ZOI and a variance under section 316(a), ultimately, the two things are different and require a different analysis. For example, as was noted above, pursuant to Water Quality Standard 10, the analysis in determining whether a ZOI can be established involves more than just a consideration of the thermal impact of a discharge.

A ZOI that involves consideration of the thermal component of a discharge generally does not, but could require a variance under section 316(a). Whether a variance is or is not required depends upon the legal basis for the thermal effluent limit. In general, a thermal effluent limit derived solely from a Water Quality Standard is not applicable in a ZOI, since Water Quality Standard 10 states that, unless otherwise indicated, an applicable water quality criterion applies outside the ZOI for a discharge. In such a case, a variance under 316(a) would not be needed. A

thermal effluent limitation required under a different legal basis, say a regulation, unless it indicated otherwise, would be applicable within the ZOI. As such, authorizing any discharge that would exceed such a limit, even within the ZOI, would require a variance under section 316(a).

In sum, the establishment of a ZOI under Water Quality Standard 10 is different than whether or not to grant a variance under section 316(a) for the thermal component of a discharge. Moreover, a variance under section 316(a) may not be needed for discharges that exceed a thermal effluent limit within the ZOI. Any such discharge would, of course, be subject to evaluation under Water Quality Standard 10. Accordingly, the Department is not adopting the suggestion of the commenter to add a reference to section 316(a) to Water Quality Standard 10. To do so, may only serve to confuse what are distinct matters that rely upon distinct analysis.

X. Final Wording of the Water Quality Standards

The final revised Water Quality Standards document is presented in Appendix G of this document.

XI. Conclusion

Based upon the comments submitted by interested parties and addressed in this Hearing Report, I recommend the proposed final revisions to the Connecticut Water Quality Standards, as attached hereto, be submitted by the Commissioner of Environmental Protection for review and approval by the federal Environmental Protection Agency.

Denise Ruzicka, Hearing Officer

1/4/2011
Date

XII. Appendices

A. List of Persons Providing Comment In Response to the Notice of Intent to Revise Water Quality Standards

Notice of Intent to Revise Water Quality Standards	
Comment Number	**Comments Provided by:**
1	Alkylphenols & Ethoxylates Research Council
2	Judith Brideau
3	EarthPlace
4	Connecticut Fund for the Environment
5	Groton Open Space Association
6	Norwalk River Watershed Association
7	Rivers Alliance (preliminary & additional comments)
8	Sharon Sewer Water Commission/Wright-Pierce
9	Richard Weisberg
10	Town of Newtown
11	Sigrun Gadwa
12	Regional Water Authority
13	Richard Canavan

B. Notice of Intent to Amend Connecticut Water Quality Standards and to Hold a Hearing

NOTICE OF INTENT TO AMEND CONNECTICUT WATER QUALITY STANDARDS AND TO HOLD A PUBLIC HEARING

In accordance with the Connecticut General Statutes (C.G.S.) Section 22a-426, the Connecticut Department of Environmental Protection, Bureau of Water Protection and Land Reuse, will be conducting a public hearing to receive oral and written testimony on proposed amendments to the Connecticut Water Quality Standards. The proposed amendments relate to a number of revisions to the surface water quality standards, surface water quality criteria, and surface and ground water quality classifications.

Changes and amendments proposed for revision include, but are not limited to:

- numeric criteria for toxic pollutants;
- standards for temperature;
- standards for dissolved oxygen in marine waters;
- standards for biological condition;
- allowable discharges to Class A water bodies;
- the antidegradation implementation policy;
- surface water quality classification maps; and
- other minor changes or clarifications.

Copies of the proposed amendments are available for public inspection during normal business hours at the Department of Environmental Protection's Bureau of Water Protection and Land Reuse, Planning and Standards Division, 2nd Floor, 79 Elm Street, Hartford, CT. A link to the proposed amendments is available on the Department's website at http://www.ct.gov/dep/publicnotices. The proposed amendments can also be obtained by contacting Traci Iott at the above address, or by phone at (860) 424-3082.

All interested parties are invited to express their views on the proposed amendments at a hearing to be held at the following place and times:

February 3, 2010 (snow date February 4, 2010)
1:30 p.m. – until all comments have been heard
Phoenix Auditorium, 5th Floor,
Department of Environmental Protection
79 Elm Street, Hartford, Connecticut

Speakers are requested, although not required, to submit a written copy of their comments. Written comments on the proposed amendments may also be submitted to Traci Iott, Department of Environmental Protection, Bureau of Water Protection and Land Reuse, Planning & Standards Division, 79 Elm Street, Hartford, Connecticut, 06106–5127 by February 15, 2010.

In addition, the Department provides notice that an informational session will be provided on January 26, 2010 (snow date January 28, 2010) at 9:30 in the Russell Hearing Room, 79 Elm Street, Hartford, Connecticut.

Interested persons are advised, however, that these informational sessions are not a substitute for submitting comments in the manner described above in this notice and that the Department will not be receiving public comments during these informational sessions. Any person seeking to comment on the proposed amendments will need to submit a comment in writing or at the public hearing, even if the same matter is discussed during these informational sessions.

In conformance with the ADA individuals with disabilities who need this information in an alternative format, to allow them to benefit and/or participate in the agency's programs and services, should call (860)-424-3051 or (860) 418-5937 or e-mail Marcia Z. Bonitto, ADA Coordinator, at: Marcia.Bonitto@ct.gov. Requests for accommodations must be made at least two weeks prior to the program date.

/s/ Paul E. Stacey .
Paul E. Stacey
Director
Planning & Standards Division

10 December 2009 .
Date

C. Exhibits for Water Quality Standards Hearing

Copies of the following documents can be obtained from the CTDEP web site at:
http://www.ct.gov/dep/cwp/view.asp?a=2719&Q=452434&depNav_GID=1654

Exhibit or Comment Identifier	Description
Exhibits	
1	Authorization to Hold a Public Hearing
2	Notice of Intent to Amend the Connecticut Water Quality Standards
3	Water Quality Standards Published in the Connecticut Law Journal
4	Affidavit of Publication of Notice in Norwich Bulletin January 12, 2010
5	Affidavit of Publication of Notice in Connecticut Post January 13, 2010
6	Attendance Sheet from Public Information Meeting on January 26, 2010
7	Copy of Presentation Given at Public Meeting on January 26, 2010
8	Copies of Letters Sent to Members of Environment Committee
9	Certified Mail Receipts for Letters Sent to Chief Elected Officials
10	Proposed Revisions to Connecticut Water Quality Standards December 22, 2009
11	Connecticut Water Quality Standards December 17, 2002
12	CTDEP Supplemental Materials: Dissolved Oxygen Criteria for Marine

Exhibit or Comment Identifier	Description
	Waters
13	Water Quality Criteria Comparison Table
14	Proposed Changes to Connecticut Water Quality Standards Red Line Version
15	Errata Sheet Connecticut Water Quality Standards February 2, 2010
16	CTDEP Supplemental Materials: Biological Condition Gradient
17	CTDEP Supplemental Materials: Temperature Criteria
18	Nutrient Reduction Strategy for Freshwater: Phosphorus
19	Connecticut Methodology for Freshwater Nutrient Management Technical Support Document
20	CTDEP Supplemental Materials: Water Quality Criteria
32	Affidavit of Publication Waterbury Republican January 25, 2010
33	Affidavit of Publication Hartford Courant January 25, 2010
34	Affidavit of Publication New Haven Register January 25, 2010
35	Affidavit of Publication Connecticut Port January 27, 2010
36	Affidavit of Publication Norwich Bulletin January 26, 2010
37	Affidavit of Publication Hartford Courant January 11, 2010
38	Affidavit of Publication New Haven Register January 11, 2010

Exhibit or Comment Identifier	Description
39	Affidavit of Publication Waterbury Republican January 11, 2010
40	Public Hearing Transcript
Comments	
21	Mr. Eric Brown, Connecticut Business and Industry Association
22	Connecticut Water Pollution Abatement Assocation
23	Alkyl Phenol Ethoxylate Research Council
24	Mr. Richard Weisberg
25	Mr. James Belden, Pomperaug River Watershed Coalition
26	Mr. Seth Molofsky, Environmental Professionals of Connecticut
27	Mr. Jay Kulowiec
28	Ms. Margaret Minor, Rivers Alliance of Connecticut
29	Mr. Lee Dunbar
30	Mr. Robert Fromer
31	Mr. Richard Weisberg: Additional Comments
41	Ms. Jennifer Gunther, Housatonic Valley Association
42	Mr. Roderic J. McLaren, General Electric Company

Exhibit or Comment Identifier	Description
43	Mr. John P. Hudak, Regional Water Authority
44	Ms. Elisabeth Ciaciola and Ms. Chelsea Reiff Gwyther, Connecticut River Watershed Council
45	Mr. Robert B. Taylor, Loureiro Engineering Associates, Inc.
46	Mr. Thomas E. Stilley, Dupont
47	CBIA Eric J. Brown Additional Comments
48	EPOC Seth Molofsky Additional Comments
49	CT DPH Ellen Blaschinski
50	APE Research Council Barbara Losey Additional Comments 1
51	APE Research Council Barbara Losey Additional Comments 2
52	CME Associates, Inc Richard Canavan
53	USEPA Stephen Silva
54	CT Coalition Against Millstone: Nancy Burton
55	Norwalk River Watershed Association Sara N. da Silva
56	Norwalk River Watershed Initiative Alexis Cherichetti
57	Naugatuck River Watershed Association, Inc. Robert Gregorski

Exhibit or Comment Identifier	Description
58	Connecticut Fund for the Environment

D. Persons Who Provided Oral Testimony at Public Hearing Date February 3, 2010

Individuals Who Provided Oral Testimony at Public Hearing on Water Quality Standards
Barbara Losey, Alkylphenols and Ethoxylates Research Council
Richard Weisberg
James Belden, Pomperaug River Watershed Association
Seth Molofsky, Environmental Professionals of Connecticut
John Wertam, Shipman & Goodwin
Joseph Kuloweic PE
Roger Reynolds, Connecticut Fund for the Environment
Greg Sharp
Margaret Miner, Rivers Alliance of Connecticut