

**Proposed Amendments to the Vermont Water Quality Standards  
Summary of Comments Received and Responses of the Department of Environmental  
Conservation  
September 16, 2014**

## **Introduction**

The Watershed Management Division of the Vermont Department of Environmental Conservation (Department) has led a public process since 2014 to propose and then conduct rulemaking to amend the Vermont Water Quality Standards (Standards). As the criteria in the Standards have not been updated in many years, the suite of proposed amendments comprise a broad set of changes to comply with current Federal guidance and statute.

The proposed amendments to the Rule consist of four components:

- 1) Housekeeping changes associated with the transfer of rulemaking authority from the Natural Resources Board (NRB) to the Agency of Natural Resources (ANR) (e.g., replacing references to the NRB with references to ANR), pursuant to Act 138 (2012 *Vt. Acts & Resolves Sec. 27, available at <http://www.leg.state.vt.us/DOCS/2012/ACTS/ACT138.PDF>*);
- 2) Revisions to the *E. coli* criteria for the protection of waters for swimming for consistency with the U.S. Environmental Protection Agency's (USEPA) guidance under Section 304(a) of the federal Clean Water Act (CWA);
- 3) Numerous technical revisions to toxic substances criteria contained within "Appendix C" of the current Standards, including the addition of criteria for chloride (de-icing salt) for consistency with USEPA's guidance under Section 304(a) of the CWA;
- 4) The addition of new phosphorus criteria framework for lakes and ponds and wadeable streams to comply with USEPA's National Strategy for the Development of Regional Nutrient Criteria promulgated under Section 304(a) of the CWA.

The rulemaking process to date has featured the involvement of a Water Quality Standards Advisory Committee, a comprehensive pre-rulemaking stakeholder outreach effort, proposed rule amendment filing and ICAR approval, and proposed rule publication for public comment. Three public hearings were offered on the proposed amendments: on July 29, 2014 (Montpelier, VT), August 5, 2014 (Rutland, VT), and August 8, 2014 (Newport, VT). The public comment period for these proposed rule amendments commenced June 25<sup>th</sup> and ended on August 15, 2014.

By that date, written comments from five organizations were submitted to the Department. Responses to each set of comments are provided in this document by commenter. Responses to organizational or public comments made verbally during the public hearings were documented, and are also provided. These comments are attributed to organizations where feasible. Questions posed during the public comment period that did not pertain to the proposed amendments were documented by the Department, but are not described further in this responsiveness summary, as the questions and responses did not bear upon this rulemaking process.

All submitted or stated comments, along with the proposed rule revision, and supporting documentation, are available for public inspection at <http://www.vtwaterquality.org/rulemaking/htm/rules.htm>.

## Written Comments Received during the Comment Period

### USEPA Region 1

USEPA Region 1 filed comprehensive and largely supportive comments in three areas.

**Comment:** USEPA indicates that *E. coli* should have an averaging period of “30 days,” as opposed to “not less than 30 days,” which they indicate is ambiguous. USEPA recommends adoption of the 30-day window, or if there is a scientific basis, another specific averaging period.

**Response:** It was not the Department’s intent to present an indefinite period of time during which attainment could be assessed. The intent of the insertion of “not less than 30 days” was to allow for a reasonable window during which to assess attainment. While a change in the proposed criteria to accommodate the 30-day recommended averaging period provides consistency with national guidelines, this change does not consider how the data produced by Vermont’s monitoring program supports implementation of the proposed criteria. The Department’s Assessment and Listing Methodology suggests that at least five *E. coli* samples collected regularly over the course of the swimming season are needed to determine attainment. This is a guideline which has been accounted for in the design of many of the individual *E. coli* monitoring projects supported by the Department. The Department recognizes that EPA guidance precludes a prescribed sample size in the Standards. However, the simple fact that the criteria are based on a geometric mean and proportion of exceedance necessitates more than one sample, and statistics indicate that variability is minimized with larger sample sizes. This is why the Vermont Assessment and Listing Methodology recommends acquisition of five or more samples for assessment.

The majority of *E. coli* indicator bacteria monitoring in Vermont takes place either by trained citizen scientists or operators of managed beaches. In the case of the citizen scientists, sampling frequency is commonly done on a weekly or bi-weekly basis. In the case of managed beaches, sampling is typically done weekly. In both cases, a prescribed timeline of 30 days is a too tight to permit the determination of impairment based on the sampling regimen. Prescribing a 30-day window essentially eliminates the possibility of capturing a geometric mean within the moving time window, unless special studies are launched to amplify the testing regimen. While Vermont is not proposing to include sample size minimums in criteria, the fundamentals of computing geometric means and proportional exceedances indicates that a 30-day averaging period is inefficient.

The epidemiological studies underpinning the USEPA criteria were based largely on season-long assessments. USEPA indicates that the 30-day window was recommended on the premise that additional protectiveness is conferred by this constrained period (USEPA RWQC, 2012, p.40). This constraint is said to allow for rapid determination of impairment, while promoting augmented monitoring to achieve associated delisting. The 30-day window is also intended by USEPA to promote rapid determination of impairment associated with combined sewer overflows (CSO) to surface waters.

However, if monitoring systems are not designed to match this window, and specifically if those that are partner-run cannot be modified to meet the window of time, then the protectiveness of the criteria becomes lesser, as fewer sites may be assessed with respect to the criteria.

The Department recognizes the need for a specified interval of sufficient brevity that impairment will be diagnosed in a timely manner. Considering the design of Vermont's monitoring programs, the Department considers a 60-day window as optimal, yet recognizes USEPA's need for additional protectiveness in the instance of CSO-affected surface waters. In consideration of these factors, the following proposed revised language is introduced for all water classes to accommodate USEPA Region 1's concern, while optimizing the implementation of the criteria.

**Escherichia coli** - Not to exceed a geometric mean of 126 organisms /100ml obtained over a representative period ~~not less than 30~~ of 60 days, and no more than 10% of samples above 235 organisms/100ml. **In waters receiving combined sewer overflows, the representative period shall be 30 days.** (...)

**Comment:** In regards to the nutrient criteria proposal, USEPA, in their closing paragraph, indicated:

The proposed biological response indicators for wadeable streams include pH, turbidity, dissolved oxygen and aquatic biota/wildlife/aquatic habitat, but do not include a primary production indicator. While acknowledging that Vermont has successfully identified and monitored restoration of nutrient impaired waters using the state's macroinvertebrate biocriteria, consistent with EPA's guiding principles, we recommend that Vermont consider enhancing the proposed combined criteria with the addition of a primary production indicator following the completion of the periphyton study currently being conducted in Vermont streams.

**Response:** This comment acknowledges USEPA's prior-stated concerns regarding the lack of a primary productivity indicator associated with the wadeable stream nutrient criteria. Over the course of 2014, USEPA and the Department have engaged in a dialogue regarding the need for such an indicator as part of this first set of numeric nutrient criteria for wadeable streams. USEPA's guidance on nutrient criteria indicates the desirability for some form of primary productivity response indicator in streams, to complement the numeric nutrient criteria and associated response indicators (turbidity, pH, dissolved oxygen, and macroinvertebrate biocriteria).

While the Department's monitoring program has very limited experience with periphyton, the program is highly qualified to apply the macroinvertebrate biocriteria to discern impairment to aquatic life uses that associated with nutrient enrichment. The technical basis for this ability has been described in Appendix A of the Technical Support Document for Nutrient Criteria, and supplemental information filed with USEPA on 7/15/2014 and 8/1/2014. The Department disagrees with the incorporation of a primary productivity indicator for this iteration of the nutrient criteria, simply because there are no Vermont-specific data available to substantiate promulgation of an appropriate primary productivity criteria.

To address this, the Department has recently entered into a cooperative research effort with USEPA to study the occurrence of periphyton (bottom-attached algae, an indicator of primary productivity) in Vermont streams, and to document the levels of growth and associated nutrients at which use impairment becomes evident. This research effort will take two years of field collection, and sufficient time to conduct analysis of the results. At the conclusion of this work, and presuming that use impairment is indeed documentable using the periphyton response indicators, then the Department will carefully consider enhancing the new nutrient criteria with the addition of a suitable primary productivity indicator. This is predicted to occur during the next triennial review of the Standards, or earlier, if applicable.

**Comment:** USEPA has identified four minor corrections to our Appendix C criteria amendments to be consistent with current guidance. They also indicate the need for the ammonia footnote to point to specific sections of the most current USEPA ammonia criteria guidance. Specifically:

DEC is proposing numerous revisions and additions to the numeric criteria in Appendix C. Most of these are at least as stringent as EPA's National Recommended Water Quality Criteria. We have the following few concerns.

- Criteria for nonylphenol are proposed for the protection of human health at the same level that EPA recommends for the protection of aquatic biota. This appears to be an error in the table which could be corrected by moving the nonylphenol criteria into the correct column.
- Criteria for ammonia are proposed by reference to EPA's 2013 ammonia criteria document. We recommend that DEC adopt criteria tables into the Vermont's WQS or specifically reference particular tables from the criteria document. This would ensure consistent application of the ammonia criteria since the document includes options for site specific criteria development that DEC may not have intended to include in the new ammonia criteria.

**Response:** The criteria for nonylphenol in Appendix C have been corrected, and the specific tables to be used within the 2013 USEPA ammonia criteria are now referenced as follows:

“see EPA April 2013 water quality criteria document for Ammonia. [Tables 5a and 5b provide the acute criteria values and Table 6 provides the chronic criteria.](#)”

### **Black River Action Team**

**Comment:** “As a volunteer organization based on the Black River in Windsor County VT, it seems to me that, while programs exist to help groups like the BRAT monitor *E. coli* levels in our waterways, it would be pragmatic for the State to continue to explore more expeditious methods for collecting this information so it may be shared with the recreating public in a more timely fashion. As technology and scientific research advance, procedures such as qPCR and others may become feasible alternatives to the current methods which require long waiting periods for bacterial culturing.”

“It is my hope, as Director of the Black River Action Team, that the State of Vermont continues to stay abreast of cutting-edge research and to consider all options for quick testing so we may more accurately inform the public as they swim, boat, and fish in our waters.”

**Response:** The Department views organizations such as “BRAT” as key partners in the monitoring and assessment of surface waters for many constituents including indicator bacteria. The lag time for *E. coli* water samples resulting from the necessary 24 hour incubation can be a frustration. For states who rely upon *Enterococci* as indicator bacteria (USEPA recommends *Enterococci* for salt waters), then the mentioned qPCR measurement technology can facilitate more rapid testing of swim waters. No such technology has yet been developed and Federally-approved for *E. coli*. The Department’s scientists continue to keep aware of emerging technology for the measurement of surface water contaminants and indicator bacteria. Should a rapid assessment method for *E. coli* become approved for use by USEPA, the Department will certainly consider adopting the technology as early as feasible.

### Copper Development Association

**Comment:** With respect to the amendments to water quality standards, we suggest the following addition:

- Add a new footnote to the acute and chronic copper aquatic life criteria entries in Appendix C: Water Quality Criteria for the Protection of Human Health and the Aquatic Biota that would state: “Freshwater copper criteria may be calculated utilizing the procedures identified in USEPA’s Aquatic Life Ambient Freshwater Quality Criteria – Copper (2007), USEPA-822-R-07-001.”

This suggestion is accompanied by technical documentation pertaining to the Biotic Ligand Model (BLM); an alternative modeling approach to standard hardness-correction contained in the proposed revised copper standard. The BLM accounts for other water quality factors that mediate copper toxicity.

**Response:** The Department has reviewed the EPA’s Biotic Ligand Model (BLM) and does not have plans to adopt this method as an alternate approach to the current Standards at this time. A review of NPDES permits has shown that site-specific copper criteria development has not been required to date. Compliance with hardness-based copper criteria (EPA-822-R-02-47) has not been problematic in Vermont waters. There is good agreement between the hardness-based criteria and the estimated BLM-derived criteria at low dissolved organic carbon (DOC) concentrations, while the hardness-based criteria may be more conservative than BLM-derived criteria at higher DOC concentrations. At low pH sites the hardness-based criteria may be less conservative, however receiving waters with low pH have not been identified for permits discharging copper. The Department is open to learning more about incorporation of the BLM in future revisions to the Standards.

### Connecticut River Watershed Council

**Comment:** Section 1-02 D 6 changes existing wording to read, “approval or adoption of a basin plan.” What is the distinction between these actions by the Secretary? Would an approved plan have the same weight as an adopted plan? Would either a plan approved or adopted both have the water classifications into types in the plan or does approval lessen that requirement but still allow mitigation funds to flow? The word approval should have a definition.

**Response:** The Department recognizes that this comment pertains largely to the designation of Class B surface waters into Water Management Types. Pursuant to Section 1-02 D (5) of the VWQS, Basin Plans shall propose the appropriate Water Management Type of Types for Class B waters based on the exiting water quality and reasonably attainable and desired water quality management goals. ANR is re-evaluating whether Water Management Typing is the most effective and efficient method of ensuring that quality of Vermont’s waters are maintained and enhanced as required by the VWQS, including the anti-degradation policy. Tactical Basin Plans signed by the Secretary that do not contain recommendations for designation of Class B waters into Water Management Types, have been termed “approved” instead of “adopted” since 2007. Such Plans do contain waterbody reclassification (and Outstanding Resource Water) recommendations upon which the Secretary would consider rulemaking action. All Basin Plans contain funding recommendations that receive considerable weight in grant decisions made by the Department using Ecosystem Restoration and certain other implementation funds.

In consideration of the confusion this proposed change could generate, the Department has determined not to proceed with the change at this time. A more comprehensive approach to addressing the issues associated with basin plan adoption vs. approval will be developed by the Department, with stakeholders, in a forthcoming set of revisions to the Standards. This revision process is intended to initiate early in 2015, and after passage of the present amendments, to address some of the integral components of the Standards. The Department invites CRWC’s participation in that effort, and others.

**Comment:** CRWC seeks clarification over how declaratory rulings in Section 1-05 are addressed now that ANR has authority over the WQS, writing specifically: “(...) *the Secretary does not have authority to issue declaratory rulings, as did the panel, but what if someone does want an explanation or clarification of a section of the WQS, who answers the question? If an answer is given, is it a decision of the Secretary? Is the answer appealable to the Environmental Court as are all decision of the Secretary?*”

**Response:** The Secretary is required to provide for declaratory rulings as to the applicability of any statutory provision or of any rule or order of the agency. See 3 V.S.A. § 808 generally, and 10 V.S.A. § 1252(f) specifically regarding the Standards. Acts and decisions of the Secretary pursuant to 10 V.S.A. § 1252(f) are appealable to environmental court. See 10 V.S.A. § 8503(a)(1)(E). The amendment was revised as follows to provide clarity:

### Section 1-05 Interpretation

~~Formal interpretation of these rules may be obtained as provided for in the Board’s Rules of Procedure.~~

~~In most situations it is the Secretary, as the initial decision-maker in a variety of permit proceedings, who is required to make determinations and interpretations of these rules. Where a *de novo* appeal is taken from the Secretary’s decision, the appellate decision-maker must make determinations and interpretations under these rules to achieve the purposes of both state and federal law. The decision-maker in a *de novo* appeal is not bound by any determinations or interpretations of these rules made by the Secretary relative to an application, provided that review of such determinations is within the scope of the appeal.~~

~~The review of informal interpretations made by the Secretary and advisory opinions issued by the Board's Executive Officer may be brought to the Board by means of a petition for a declaratory ruling by any person demonstrating a stake in the outcome.~~

~~Declaratory rulings by the Secretary may be appealed to the Vermont Supreme Court under the provisions of 3 V.S.A. §808.~~

~~The Secretary may issue declaratory rulings regarding the water quality standards pursuant to 10 V.S.A. §1252 (f).~~

**Comment:** CRWC remains concerned that the thermal variance language is not protective enough of Vermont waters. CRWC recommends that DEC implement a new approach to developing biologically based temperature criteria and permit conditions for thermal discharges that ensure effluent limits and ambient conditions. Specifically, they recommend that DEC and ANR engage with New Hampshire, Massachusetts, and Connecticut water quality and fisheries agencies, USFWS, USEPA, and the New England Interstate Water Pollution Control Commission in order to develop temperature criteria for Vermont's waters as well as a means to implement the criteria into permit conditions.

Since the needed coordination with other jurisdictions will take time, CRWC suggests that DEC add two new subsections after the existing §3-01B(1)d3. This language will provide an improved level of protection while the needed coordination is undertaken by DEC. Specifically, CRWC requests addition of the following:

- (4) The owner or operator of any source seeking a thermal variance, can demonstrate that any effluent limitation proposed for the control of the thermal component of any discharge from such source requires thermal effluent limitations more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made, and;
- (5) Any permit conditions with respect to the thermal component of the discharge (taking into account the interaction of such thermal component with other pollutants), will assure, the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on that body of water, notwithstanding any variance that exceeds the values specified above.

**Response:** The Department recognizes CRWC's desire to augment the protectiveness of Vermont's Water Quality Standards with respect to thermal discharge. As these changes were not proposed for adoption during pre-rulemaking stakeholder outreach, nor presented to the public during the ICAR or review phases of this rulemaking, their inclusion in this set of revisions would be premature. The Department instead proposes that the specific proposed additions be taken up for consideration in the aforementioned upcoming set of revisions to the Standards.

**Comment:** CRWC requests some clarification on the definition of "wadeable," and information about the Department's plans to develop criteria for non-wadeable rivers. CRWC specifically quotes a somewhat confusing definition of wadeable that comes from a document entitled "*Biocriteria for Fish and Macroinvertebrate Assemblages in Vermont Wadeable Streams and Rivers - Development Phase.*"

**Response:** While the proposed amendments reference a companion document cited by CRWC, the comment regarding the definition of “wadeable” stream in the cited document is well founded. The definition quoted by CRWC is unclear. Operationally, practitioners in the field of biological assessment, whether from the regulatory, regulated, or consulting sectors, have a sound understanding of which streams may be assessed as wadeable. While no modifications to the proposed amendments are made in response to this comment, for clarity, the USEPA defines wadeable streams as below, and this definition has been incorporated into the *Technical Support Document for Nutrient Criteria*:

*Wadeable streams are streams, creeks and small rivers that are shallow enough to be sampled using methods that involve wading into the water. They typically include waters classified as 1st through 4th order (and sometimes 5th) in the Strahler Stream Order classification system (based on the number of tributaries upstream; see [http://water.USEPA.gov/type/rs1/monitoring/streamsurvey/web\\_qa\\_06.cfm#1](http://water.USEPA.gov/type/rs1/monitoring/streamsurvey/web_qa_06.cfm#1)).*

Further, in the past year, the Department has invested in the development of water quality assessment capacity for larger non-wadeable rivers by participation in the USEPA-sponsored [National Rivers and Streams Assessment](#) (NRSA). This assessment, replicated on five-year intervals, conducts and reports upon a probability-based sampling campaign assessing wadeable and non-wadeable rivers across the United States. The 2008-2009 NRSA was the second such iteration of the survey, and the first for which the Department elected to adopt and implement the large river sampling techniques. The Department recognizes the importance of developing reproducible procedures for the assessment of large rivers, which is identified in the Vermont [Surface Water Monitoring Strategy](#) as a priority recommendation for program enhancement. This work has been carried out in partnership with the NH Department of Environmental Services and USEPA. Newly developed Department monitoring capacity includes new approaches for chemical, biological and physical assessments for rivers even as large as the Connecticut. The Department welcomes the participation of CRWC and other organizations in these efforts, and would propose to convene a group of CRWC, NHDES, and VTDEC staff scientists to strategically plan next steps towards the adoption of such techniques.

**Comment:** The “Proposed Nutrient Criteria for Vermont’s Inland Lakes and Wadeable Streams” is another of the backup documents for this rule making. In Table 2 page 4 under the criteria section, the narrative continues to use subjective words “minimal, minor or moderate” when describing allowable changes in water quality. Do definitions of these words exist either in statute, rule or case decisions? If so, some reference to the source definitions should be included here, maybe as a footnote. If there is no guidance then how does DEC define those terms since they are vital to reaching the management goals of the waters of Vermont? Additionally, having a listing of which river segments are “non-wadeable” easily available would allow the public to understand better the applicability of this part of the proposed rule.

**Response:** The referenced document defines the numerical thresholds for attainment of the goals stated in the Standards for minimal, minor, and moderate change to aquatic biota. While the standards present narrative descriptions of these biological thresholds (§3-02 B 3, §3-03 B 3, §3-04 B 4), Table 2 of the procedure specifically provides the qualitative definitions for minimal, minor, and moderate, in terms of the deviation from reference allowable for eight core

macroinvertebrate biological metrics. The procedure presents the guidance the Department has used for years with the regulated community to document how aquatic life uses are to be assessed. These definitions are not otherwise listed in statute, rule or case decisions.

### Vermont Natural Resources Council

**Comment:** VNRC filed comments in support of the *E. coli* and Appendix C amendments. However, they indicated concerns with the nutrient criteria framework and the outcomes identified in “Scenarios B and C” of the decision-making framework presented by the technical support document. Their comments suggested moving forward with Scenarios A and D, but holding off on Scenarios B and C. Specifically, VNRC wrote:

To narrow the scope of our concerns, the approach considered under the Nutrient Criteria Decision Framework for scenarios “A” and “D” appear to be scientifically defensible. These scenarios are supported by objective, quantifiable criteria. Thus, our concerns are limited to the scenarios “B” and “C” – the so-called “false positive” and “false negative” scenarios.

Generally, we agree that the Department cannot ignore a problem and require no remediation of a waterbody when evidence dictates a 60% likelihood that an impairment exists. We disagree, though, that an error rate of 40% is too high to require treatment to some degree when impairment might not exist. Clearly there is some wrangling to do along that spectrum. Consideration, then, of at least a few other variables are then warranted: the public’s uses of and expectations to clean water and the costs and difficulties associated with remediating a water when compared to preventing an impairment and, of course, the anti-degradation policy of the Vermont Water Quality Standards. (...)

In light of the Department’s mission, picking a number at which (to put it simply) half of the streams might be impaired and half might not be impaired is too loose of an approach to that responsibility to protect waters and their uses. Given the variability of the data, the potential for additional variables to influence the outcome and the expressed uncertainty of the likelihood of false positives and false negatives, it should be expected that the Agency would include a margin of safety on either side of the mid-point. In addition, those “B” and “C” scenarios should include consideration of other variables that help to focus the Agency’s decision. (...)

Given the importance to have these variables better defined before the Agency is granted the authority to exercise a partial approach to implementing the standards, **the nutrient criteria as proposed for these “B” and “C” scenarios should be omitted from the proposed changes to the Vermont Water Quality Standards until a decision framework has been developed with consultation with the Water Quality Advisory Committee and opened for public comment.** The Agency’s March 27, 2013 draft for Water Quality Advisory Committee Review appears to suggest this very approach:

“The Maine Department of Environmental Protection has proposed an approach to nutrient criteria rulemaking that combines nutrient concentration and response

variables together in making an impairment assessment...[which] should mitigate against false positive and false negative results...Maine's approach to nutrient criteria could be adapted for Vermont by combining newly proposed numeric nutrient concentration criteria for inland lakes and wadeable streams with the eutrophication-related response criteria already established in the Vermont Water Quality Standards for pH, turbidity, dissolved oxygen, aquatic biota, and aesthetics. This approach would provide the benefits of having numeric nutrient criteria while dealing appropriately with situations of false positive and false negative impairment determinations". (...)

**Response:** These comments were somewhat unclear as to the exact concerns, and suggested to Department scientists that VNRC may have been unclear as to some components of the nutrient criteria proposal. The Department had specifically crafted a proposal for criteria that comports exactly with VNRC's quoted description of Maine's approach. In their comment transmission, VNRC invited a discussion with the Department regarding the contents of their comments, Department scientists met with VNRC on 8/19/2014 to seek and provide clarification. VNRC invited participation by CRWC in this discussion as well.

During that discussion, it emerged that VNRC had understood the response variables contained in the proposed Tables three, four, and five, to be a "menu" of parameters which *may* be used to confirm or refute impairment status, depending on the instance of likelihood of false positive or negative determinations. This is not the formulation of the criteria. To clarify, the Department references the language presented in the proposed Standards preceding each nutrient criteria table, which reads (emphasis added):

**“Nutrients -** Compliance with nutrient criteria for Class XX waters shall be *achieved either by compliance with the nutrient concentration values in Table X or by compliance with all nutrient response conditions* in Table X. In situations where the applicable nutrient concentrations are achieved *but the nutrient response conditions are not met* as a result of nutrient enrichment, the Secretary may establish alternate nutrient concentration criteria on a site-specific basis as necessary to achieve compliance with the nutrient response conditions. All waters shall maintain a level of water quality that provides for the attainment and maintenance of the water quality standards of downstream waters.”

This language establishes each of the response variables of the nutrient criteria tables as binding Standards criteria, and violation of any one would result in non-attainment. In a follow-up communication sent from VNRC to the Department, dated 8/28/2014, VNRC confirmed this, stating:

*“Since we submitted our comments, Brian Shupe and I met with you and Eric Smeltzer to discuss our concerns. It is my position that several of our concerns were based on a misunderstanding of the proposed criteria: the Agency proposes that ALL of the criteria listed in Table 3 of the proposed standards are considered during the assessment of waters in categories ‘B’ and ‘C.’ Thank you for meeting with us and for spending the time to help us better understand the Agency’s proposal.”*

It is the understanding of the Department from this communication that the meeting with VNRC and CRWC provided clarification that assuaged the concerns articulated by VNRC on the proposed nutrient criteria.

## Comments Received during Public Hearings

### Vermont League of Cities and Towns

**Comment:** Regarding the clause “none attributable to wastes,” is “waste” defined? Does this mean the raccoon near the water?

**Response:** Waste is a defined term in the Standards, which does not include wildlife because wildlife is considered a natural component of the ecosystem.

**Comment:** Regarding the chloride criteria, three questions:

- 1) Are the proposed criteria VT’s own initiative?
- 2) Does chloride stay in the lake the way phosphorus does?
- 3) How do you determine how much chloride is acceptable in a surface water body based upon how much rock salt you can put on the road?

**Response:**

- 1) These criteria are proposed for adoption based on USEPA guidance issued under Section 304 of the Clean Water Act. Some States have adopted these criteria in recognition of increasing levels of chloride attributable to de-icing salts. Vermont has observed increases in chlorides in surface waters.
- 2) Chloride is a conservative substance, meaning that it does not accumulate in Lake Champlain over time. The Department has, however, seen smaller lakes subject to groundwater recharge display significant increases in chloride concentration.
- 3) The Department’s Plan is to rely on best management practices (BMPs) for managing de-icing salts. Examples include increased use of Brine or other alternatives, or coordinated management practices that eliminate “double-application.” In other words, you do not want municipalities to apply salt to the entry road for a large parking lot of a large store, only to then have the local applicator of that store apply it as well. The State of NH is a leader in the management of chloride in local and private application, and VTrans is a leader in Vermont in good de-icing salt application practices. One future step to consider is legislative action to reduce liability upon de-icing salt applicators who operate within the BMPs of an established chloride management plan.

### Department of Fish and Wildlife

**Comment:** Regarding fish tissue mercury, are there certain species of fish that the Department will target for assessment?

**Response:** There is an USEPA approved TMDL for mercury in the Northeast States that uses yellow perch and small mouth bass as the indicator species. There is a methodology in place for relating these concentrations to other species if needed. However, the criteria would apply to all species, likely of legal size.

## Stone Environmental, Inc.

**Comment:** How do the phosphorus criteria dovetail with the indirect discharge rules that limit phosphorus discharge?

**Response:** There are two intersecting provisions: the allowable phosphorus increase provision in the Indirect Discharge Rules (IDR) and the Standards, and the “No Significant Alteration of Aquatic Biota” (No SAAB) provision of the IDR. The No SAAB standard is more stringent than the biological conditions we are proposing in the Standards revisions, while the allowable phosphorus increase in the IDR must comply with the limits established in the Standards under IDR §14-701(b)(1), which remains unchanged. As such, the IDR present conditions that are protective of the nutrient criteria.

**Comment:** Indirect system permittees don’t monitor Dissolved Oxygen (DO) or turbidity, so how will the indirect discharge permitting requirements be changed to align with the Standards requirements?

**Response:** This is a good point. As attainment of the nutrient criteria may require attainment of all response variables, the Department will examine whether there are changes needed to the IDR to account for the changes in the Standards.

**Comment:** The majority of the monitoring sites are relatively small and it is tough for them to support consistent monitoring. They are not seeing the growth in their user base. They are constantly under strain of trying to protect tiny streams and not break the town’s back.

**Response:** The Department is exploring means for partnerships for surface water monitoring. This is being discussed via a new workgroup known as the Vermont Water Monitoring Council. It is the intent of the Department to explore opportunities for partnerships around compliance monitoring for direct and indirect dischargers.

## General Comments

**Comment:** How do the nutrient criteria relate to the Lake Champlain TMDL?

**Response:** The proposed criteria do not affect the existing numeric criteria for Lake Champlain or Memphremagog. In addition, a provision in the amendments indicates that phosphorus levels must comply with TMDL, basin plans, and other applicable plans.

**Comment:** Are there any substantive changes that would affect public process?

**Response:** There are no proposed changes that would affect public process. Further, in the lead-up to these proposed amendments, the Department has engaged a comprehensive outreach process.

**Comment:** How do these Standards ensure the protection of public water supplies in Canadian waters of Lake Memphremagog?

**Response:** There are no changes proposed in these amendments that would change drinking water supply suitability for waters north of the Canadian border. The Standards carry a designated use of Drinking Water Supply for all Class B waters including Lake Memphremagog. The criteria in the Standards protect surface waters for drinking water suitability with standard treatment. Further, United States and Canadian drinking water criteria (which supplement the Standards and the Canadian Water Quality guidelines, respectively) also apply to the all public drinking water treatment facilities. The Department is confident that the Standards and associated treatment systems are fully protective of public drinking water supplies.

**Comment:** Why are the Standards to be revised every three years?

**Response:** This is the timeline prescribed by federal regulation that implements the Clean Water Act. 40 C.F.R. § 131.20(a).

**Comment:** How many streams/lakes are going to be monitored for chlorides?

**Response:** The universe of streams for which the Department has concerns over chloride is small. Most of the waters where concern exists are smaller streams receiving runoff from developed areas. The Department is not aware of any lakes where the proposed chloride standard is approached.